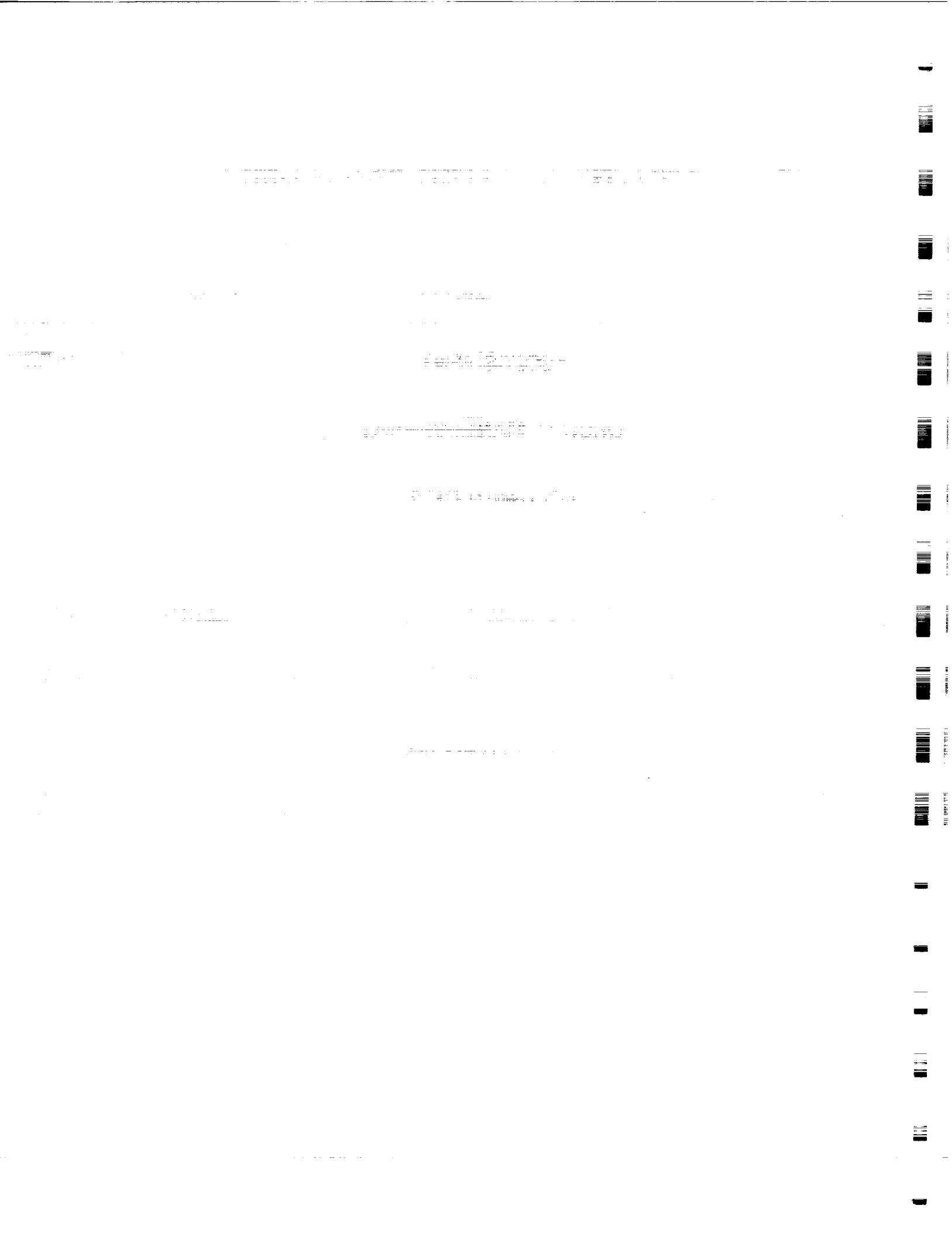


# **INDEPENDENT ORBITER ASSESSMENT**

## **ASSESSMENT OF THE ORBITAL MANEUVERING SUBSYSTEM VOLUME 2 OF 2**

**26 FEBRUARY 1988**



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-523  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 523  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-524  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 524  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

WORST CASE IS VALVE DECLARED FAILED CLOSED AND REDUNDANT VALVE IS USED TO COMPLETE CROSSFEED. LOSS OF ALL REDUNDANCY COULD RESULT IN FALSELY FAILING THE CROSSFEED SYSTEM RESULTING IN LOSS OF MISSION. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS.  
SEE JSC 10588 PAGE 5-18.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-525  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 525  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-526  
NASA FMEA #: 05-6L-2079A-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 526  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-527  
NASA FMEA #: 05-6L-2079-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 527  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-528  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 528  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-529  
NASA FMEA #: 05-6L-2090-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 529  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-530  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 530  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF DIRECT VALVE TALKBACK TO CREW. WORST CASE WOULD BE FALSELY FAILING THE A OR B VALVE CLOSED RESULTING IN LOSS OF MISSION DUE TO SAFETY CONSIDERATIONS.

NASA WOULD BE RIGHT IF SENSORS CAN BE USED (REDUNDANTLY TO TALKBACKS) TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA A PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING A TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE THERE IS NO FLUID MOVEMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-531  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 531  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-532  
NASA FMEA #: 05-6L-2079A-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 532  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-533  
NASA FMEA #: 05-6L-2079-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 533  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-534  
NASA FMEA #: 05-6L-2090-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 534  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-535  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 535  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-536  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 536  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-537  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 537  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]      [ P ]      [ P ]      [ P ]      [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF DIRECT VALVE TALKBACK TO CREW. WORST CASE WOULD BE FALSELY FAILING THE A OR B VALVE CLOSED RESULTING IN LOSS OF MISSION DUE TO SAFETY CONSIDERATIONS.

NASA WOULD BE RIGHT IF SENSORS CAN BE USED (REDUNDANTLY TO TALKBACKS) TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA A PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING A TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE THERE IS NO FLUID MOVEMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-538  
NASA FMEA #: 05-6L-2083A-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 538  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-539  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 539  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-540  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 540  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-541  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 541  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-542  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 542  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-543  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 543  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-544  
NASA FMEA #: 05-6L-2083A-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 544  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-545  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 545  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-546  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 546  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-547  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 547  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-548  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 548  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-549  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 549  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-550  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 550  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ] ADD

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-551  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 551  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-552  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 552  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-553  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 553  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-554  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 554  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-555  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 555  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-556  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 556  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:

NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-556  
NASA FMEA #: 05-6L-2091-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 566  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-557  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 557  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-558  
NASA FMEA #: 05-6L-2083-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 558  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-559  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 559  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLE

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## **REMARKS:**

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-560  
NASA FMEA #: 05-6L-2091-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 560  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-561  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 561  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-562  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 562  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

WORST CASE IS VALVE DECLARED FAILED CLOSED AND REDUNDANT VALVE IS USED TO COMPLETE CROSSFEED. LOSS OF ALL REDUNDANCY COULD RESULT IN FALSELY FAILING THE CROSSFEED SYSTEM RESULTING IN LOSS OF MISSION. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS.  
SEE JSC 10588 PAGE 5-18.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-563  
NASA FMEA #: NONE

NASA DATA: ~~REMOVED~~  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 563  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-564  
NASA FMEA #: 05-6L-2083-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 564  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]      [ P ]      [ P ]      [ P ]      [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-565  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 565  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ / ]		[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]		[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]		[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-567  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 567  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-568  
NASA FMEA #: 05-6L-2082-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 568  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

WORST CASE IS VALVE DECLARED FAILED CLOSED AND REDUNDANT VALVE IS USED TO COMPLETE CROSSFEED. LOSS OF ALL REDUNDANCY COULD RESULT IN FALSELY FAILING THE CROSSFEED SYSTEM RESULTING IN LOSS OF MISSION. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS.  
SEE JSC 10588 PAGE 5-18.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-569  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 569  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-570  
NASA FMEA #: 05-6L-2079A-2

NASA DATA: ~~CONFIDENTIAL~~  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 570  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-571  
NASA FMEA #: 05-6L-2079-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 571  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-572  
NASA FMEA #: 05-6L-2079-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 572  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-573  
NASA FMEA #: 05-6L-2079-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 573  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-574  
NASA FMEA #: 05-6L-2090-1

NASA DATA: \_\_\_\_\_  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 574  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-575  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 575  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-576  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 576  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF DIRECT VALVE TALKBACK TO CREW. WORST CASE WOULD BE FALSELY FAILING THE A OR B VALVE CLOSED RESULTING IN LOSS OF MISSION DUE TO SAFETY CONSIDERATIONS.

NASA WOULD BE RIGHT IF SENSORS CAN BE USED (REDUNDANTLY TO TALKBACKS) TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA A PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING A TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE THERE IS NO FLUID MOVEMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-577  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 577  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-578  
NASA FMEA #: 05-6L-2079-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 578  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-579  
NASA FMEA #: 05-6L-2079-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 579  
ITEM: RESISTOR, 1.2K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-580  
NASA FMEA #: 05-6L-2079A-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 580  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-581  
NASA FMEA #: 05-6L-2079-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 581  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-582  
NASA FMEA #: 05-6L-2090-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 582  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-583  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 583  
ITEM: RESISTOR, 12K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-584  
NASA FMEA #: 05-6L-2078-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 584  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF DIRECT VALVE TALKBACK TO CREW. WORST CASE WOULD BE FALSELY FAILING THE A OR B VALVE CLOSED RESULTING IN LOSS OF MISSION DUE TO SAFETY CONSIDERATIONS.  
NASA WOULD BE RIGHT IF SENSORS CAN BE USED (REDUNDANTLY TO TALKBACKS) TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA A PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING A TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE THERE IS NO FLUID MOVEMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-585  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 585  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-586  
NASA FMEA #: 05-6L-2028-1

NASA DATA: -----  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 586  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]    [ P ]    [ F ]    [ P ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

ACCORDING TO THE LAST AVAILABLE NASA CRITICALITY, THIS FMEA SHOULD BE IN THE NEW NASA CIL LIST, BUT IT IS NOT. IOA ASSUMES THAT NASA DOWNGRADED THIS FMEA TO A NON-CIL SINCE IT DOES NOT APPEAR IN THE NEW NASA CIL LIST. IOA RECOMMENDS THAT NASA USE THE PREVIOUS (LAST AVAILABLE TO IOA) CRITICALITY AND SCREENS (3/1R PFP) AND REINSTATE THIS FMEA AS A CIL.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-587  
NASA FMEA #: 05-6L-2028-3

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 587  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-588  
NASA FMEA #: 05-6L-2028-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 588  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ P ] [ P ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA CONCURS WITH NASA'S CRITICALITY, SINCE THE CRIT AGREES WITH OMS HARDWARE FMEA 03-3-2008-2 (CAUSES CROSSFEED VALVE TO FAIL CLOSED). HOWEVER, NASA FAILED B SCREEN BECAUSE ONE OF THE TWO POLES FAILING IS UNDETECTABLE. IOA BELIEVES THIS IS A CARRY-OVER FROM WHEN NASA FAILED ONLY ONE CONTACT SET, AND RECOMMENDS PASSING THIS B SCREEN.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-589  
NASA FMEA #: 05-6L-2028-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 589  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

ACCORDING TO THE LAST AVAILABLE NASA CRITICALITY, THIS FMEA SHOULD BE IN THE NEW NASA CIL LIST, BUT IT IS NOT. IOA ASSUMES THAT NASA DOWNGRADED THIS FMEA TO A NON-CIL SINCE IT DOES NOT APPEAR IN THE NEW NASA CIL LIST. IOA RECOMMENDS THAT NASA USE THE PREVIOUS (LAST AVAILABLE TO IOA) CRITICALITY AND SCREENS (3/1R PFP) AND REINSTATE THIS FMEA AS A CIL.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-590  
NASA FMEA #: 05-6L-2028-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 590  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ D ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT BELLOWS FAILURE SHOULD NOT BE CONSIDERED AND CRITICALITY THUS REDUCED, SINCE IT CONSTITUTES A "MULTIPLE UNRELATED FAILURE" WHICH IS BEYOND THE SCOPE OF IOA'S INTERPRETATION OF NSTS 22206. NASA IS RIGHT THAT THIS FAILURE COULD CAUSE CONTINUOUS POWER ON THE ASSOCIATED VALVE(S), SINCE THE SIGNAL THROUGH THIS ITEM WOULD INHIBIT CLOSING OR OPENING WHEN THE VALVES REACH FULL CLOSED OR OPEN. HOWEVER, NASA'S SCENARIO WITH ANOTHER FAILURE CONSISTING OF BELLOWS RUPTURE IS IRRELEVANT. A BELLOWS RUPTURE ANYTIME EXPOSING ELECTRICAL COMPONENTS AND VALVE MOTOR TO PROPELLANT IS SERIOUS, NOT JUST WHEN THE VALVE MOTOR IS CONTINUOUSLY ON AND HOT. THAT IS, THIS FAILURE DOES NOT SIGNIFICANTLY CONTRIBUTE TO THE BELLOWS RUPTURE FAILURE. FURTHERMORE, THE VALVES ARE PROTECTED FROM CONTINUOUS POWER BY AN ELECTRICAL THERMAL SHUTOFF DEVICE WITHIN THE VALVE MOTOR AT NO MORE THAN 352 F, AND, ACCORDING TO THE SPECS, "THE MOTOR AND ACTUATION MECHANISM SHALL NOT FAIL AS A RESULT OF PROLONGED POWER APPLICATION." SEE AC MOTOR VALVE SPEC MC284-0430 SECT. 3.1, 3.2.1.2.9, 3.2.1.2.11.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-591  
NASA FMEA #: 05-6L-2028-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 591  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[    ]	[ N ]	[    ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ D ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA CONCURS WITH NASA'S CRITICALITY, SINCE THE CRIT AGREES WITH OMS HARDWARE FMEA 03-3-2008-2 (CAUSES CROSSFEED VALVE TO FAIL CLOSED). HOWEVER, NASA FAILED B SCREEN BECAUSE ONE OF THE TWO POLES FAILING IS UNDETECTABLE. IOA BELIEVES THIS IS A CARRY-OVER FROM WHEN NASA FAILED ONLY ONE CONTACT SET, AND RECOMMENDS PASSING THIS B SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-592  
NASA FMEA #: 05-6L-2027-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 592  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-593  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 593  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS THAT NASA GENERATE A FMEA WITH THIS "STUCK IN OPEN POSITION (BOTH CONTACT SETS)" FAILURE MODE. THE CLOSEST EXISTING MATCH AVAILABLE IS NASA'S FMEA 05-6L-2027-1 WITH A "FAILS TO TRANSFER, FAILS TO CLOSE, FAILS TO CONDUCT (ONE CONTACT SET)" FAILURE MODE, WHICH IS ALREADY MATCHED TO MDAC-592 AND 595.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-594  
NASA FMEA #: 05-6L-2027-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 594  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ N ]	[ ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA'S RECOMMENDED CRITICALITY IS DRIVEN BY OMS HARDWARE FMEA 03-3-2007-2, SINCE THIS FAILURE CAUSES THE TANK ISOLATION VALVE TO FAIL CLOSED. ALSO, NASA FAILED ONLY ONE POLE, CONSIDERING THE OTHER POLE AS REDUNDANT, WHEREAS IOA CONSIDERED THE WORST CASE FAILURE MODE BY FAILING A PART COMMON TO BOTH POLES (E.G. TOGGLE LEVER). THIS IS THE REASON FOR IOA'S HIGHER CRITICALITY. NASA CONSIDERED ONE POLE TO BE STANDBY REDUNDANT TO THE OTHER AND SO HAD "NOT APPLICABLE" FOR B SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-595  
NASA FMEA #: 05-6L-2027-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 595  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-596  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 596  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT NASA GENERATE A FMEA WITH THIS "STUCK IN OPEN POSITION (BOTH CONTACT SETS)" FAILURE MODE. THE CLOSEST EXISTING MATCH AVAILABLE IS NASA'S FMEA 05-6L-2027-1 WITH A "FAILS TO TRANSFER, FAILS TO CLOSE, FAILS TO CONDUCT (ONE CONTACT SET)" FAILURE MODE, WHICH IS ALREADY MATCHED TO MDAC-592 AND 595.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-597  
NASA FMEA #: 05-6L-2027-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 597  
ITEM: SWITCH TOGGLE LT/RT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA'S RECOMMENDED CRITICALITY IS DRIVEN BY OMS HARDWARE FMEA 03-3-2007-2, SINCE THIS FAILURE CAUSES THE TANK ISOLATION VALVE TO FAIL CLOSED. ALSO, NASA FAILED ONLY ONE POLE, CONSIDERING THE OTHER POLE AS REDUNDANT, WHEREAS IOA CONSIDERED THE WORST CASE FAILURE MODE BY FAILING A PART COMMON TO BOTH POLES (E.G. TOGGLE LEVER). THIS IS THE REASON FOR IOA'S HIGHER CRITICALITY. NASA CONSIDERED ONE POLE TO BE STANDBY REDUNDANT TO THE OTHER AND SO HAD "NOT APPLICABLE" FOR B SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-598  
NASA FMEA #: 05-6L-2011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 598  
ITEM: FUSE

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-599  
NASA FMEA #: 05-6L-2011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 599  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-600  
NASA FMEA #: 05-6L-2152-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 600  
ITEM: INDICATOR, POSITION BARBERPOLE TALKBACK

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

WORST CASE IS VALVE DECLARED FAILED CLOSED AND REDUNDANT VALVE IS USED TO COMPLETE CROSSFEED. LOSS OF ALL REDUNDANCY COULD RESULT IN FALSELY FAILING THE CROSSFEED SYSTEM RESULTING IN LOSS OF MISSION. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS.  
SEE JSC 10588 PAGE 5-18, AND MALFUNCTION. PROCEDURE. RCS 103A.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-601  
NASA FMEA #: 05-6L-2152-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 601  
ITEM: INDICATOR, POSITION BARBERPOLE TALKBACK

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

WORST CASE IS VALVE DECLARED FAILED CLOSED AND REDUNDANT VALVE IS USED TO COMPLETE CROSSFEED. LOSS OF ALL REDUNDANCY COULD RESULT IN FALSELY FAILING THE CROSSFEED SYSTEM RESULTING IN LOSS OF MISSION. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS.  
SEE JSC 10588 PAGE 5-18, AND MALFUNCTION PROCEDURE RCS 103A.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-602  
NASA FMEA #: 05-6L-2151-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 602  
ITEM: INDICATOR, POSITION BARBERPOLE TALKBACK

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF DIRECT VALVE TALKBACK TO CREW. WORST CASE WOULD BE FALSELY FAILING THE A OR B VALVE CLOSED RESULTING IN LOSS OF MISSION DUE TO SAFETY CONSIDERATIONS.

NASA WOULD BE RIGHT IF SENSORS CAN BE USED (REDUNDANTLY TO TALKBACKS) TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA A PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING A TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE THERE IS NO FLUID MOVEMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-603  
NASA FMEA #: 05-6L-2151-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 603  
ITEM: INDICATOR, POSITION BARBERPOLE TALKBACK

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF DIRECT VALVE TALKBACK TO CREW. WORST CASE WOULD BE FALSELY FAILING THE A OR B VALVE CLOSED RESULTING IN LOSS OF MISSION DUE TO SAFETY CONSIDERATIONS.

NASA WOULD BE RIGHT IF SENSORS CAN BE USED (REDUNDANTLY TO TALKBACKS) TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA A PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING A TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE THERE IS NO FLUID MOVEMENT.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-604  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 604  
ITEM: METER, FRCS/OMS KIT PRESSURE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS THAT NASA NOT DELETE THIS FMEA 05-6L-2157-1. THIS ITEM IS ASSOCIATED WITH THE FLIGHT-DEPENDENT KIT, BUT ALSO DISPLAYS FORWARD RCS AND OMS TANK PRESSURES WHICH ARE NOT FLIGHT-DEPENDENT. IOA ALSO RECOMMENDS A CRIT UPGRADE FROM NASA'S ORIGINAL 3/3 TO 3/2R, BECAUSE FALSE INDICATIONS OF OMS TANK PRESSURE GIVING AN APPEARANCE OF A LEAK COULD LEAD TO LOSS OF MISSION FOR SAFETY REASONS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-605  
NASA FMEA #: 05-6L-2155-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 605  
ITEM: METER, LT OMS/RCS PRESSURE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

LOSS OF ALL REDUNDANCY IN PRELAUNCH AND ONORBIT PHASES WOULD RESULT IN LEFT RCS HELIUM TANK BEING DECLARED FAILED RESULTING IN A LOSS OF DELTA VELOCITY AND LOSS OF MISSION CAPABILITY (SEE FLIGHT RULE 6-41), UNLESS SENSOR FAILURE IS DETERMINED. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE NO FLUID MOVEMENT. SEE FLIGHT RULE 6-41.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-606  
NASA FMEA #: 05-6L-2158-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 606  
ITEM: METER, RCS/OMS PROPELLANT QUANTITY GAUGE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-607  
NASA FMEA #: 05-6L-2155-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 607  
ITEM: METER, RT OMS/RCS PRESSURE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

LOSS OF ALL REDUNDANCY IN PRELAUNCH AND ONORBIT PHASES WOULD RESULT IN LEFT RCS HELIUM TANK BEING DECLARED FAILED RESULTING IN A LOSS OF DELTA VELOCITY AND LOSS OF MISSION CAPABILITY (SEE FLIGHT RULE 6-41), UNLESS SENSOR FAILURE IS DETERMINED. NASA WOULD BE RIGHT IF SENSORS CAN BE USED REDUNDANTLY TO TALKBACKS TO DETERMINE VALVE POSITION. BUT FLIGHT AND MALFUNCTION PROCS DO NOT MENTION THIS AND OMS FIRING SEQUENCER SOFTWARE DOES NOT USE THESE TALKBACKS. PHYSICALLY CANNOT DETERMINE VALVE CLOSURE VIA PRESSURE SENSOR, EXCEPT DURING A BURN. JUST CLOSING TANK ISOLATION VALVE WILL NOT CAUSE A PRESSURE DIFFERENCE JUST DOWNSTREAM (UNLESS BURNING OMS) SINCE NO FLUID MOVEMENT. SEE FLIGHT RULE 6-41.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-608  
NASA FMEA #: 03-3-2801-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 608  
ITEM: SENSOR PRESSURE, OMS FUEL TANK ULLAGE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-609  
NASA FMEA #: 03-3-2801-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 609  
ITEM: SENSOR PRESSURE, OX TANK ULLAGE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-610  
NASA FMEA #: 03-3-2803-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 610  
ITEM: SENSOR TEMPERATURE, FUEL TANK LOWER

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 / 2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ] [ ] [ ] [ ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

LOSS OF MISSION WOULD OCCUR IN THE LIFTOFF PHASE. A TEMPERATURE SENSOR FAILURE COULD LEAD TO WRONGLY FAILING THE OMS FUEL PROPELLANT TANK LEADING TO THE ESTABLISHMENT OF A SHALLOW ATO BEFORE SENSOR FAILURE IS DETERMINED. NO REDUNDANCY AND MISSION LOSS IMPLIES A CRIT OF 2/2.  
SEE JSC 20923 PCN-1 AND FLIGHT RULE 6-2 THEN 6-40K.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-611  
NASA FMEA #: 03-3-2803-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 611  
ITEM: SENSOR TEMPERATURE, OX LOWER TANK

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /2 ]	[    ]	[    ]	[    ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

LOSS OF MISSION WOULD OCCUR IN THE LIFTOFF PHASE. A TEMPERATURE SENSOR FAILURE COULD LEAD TO WRONGLY FAILING THE OMS FUEL PROPELLANT TANK LEADING TO THE ESTABLISHMENT OF A SHALLOW ATO BEFORE SENSOR FAILURE IS DETERMINED. NO REDUNDANCY AND MISSION LOSS IMPLIES A CRIT OF 2/2.  
SEE JSC 20923 PCN-1 AND FLIGHT RULE 6-2 THEN 6-40K.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-612  
NASA FMEA #: 05-6L-2034-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 612  
ITEM: SWITCH ROTARY, RCS/OMS PRESS

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA DOES, BUT NASA DOES NOT, IMPLY THAT CRT DISPLAYS AND MISSION CONTROL CENTER ARE REDUNDANT TO ITEM TO GET OMS RIGHT AND LEFT PROPELLANT ULLAGE, (AND RCS R/L/FWD PROP ULLAGE AND RCS R/L/FWD HE TANK PRESSURE) MEASUREMENTS. LOSS OF REDUNDANCY CAN RESULT IN LOSS OF MISSION FOR SAFETY REASONS SINCE THE ACTUAL STATUS OF THE SYSTEMS ARE UNAVAILABLE, IMPLYING A CRITICALITY OF 3/2R.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-613  
NASA FMEA #: 05-6L-2035-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 613  
ITEM: SWITCH ROTARY, RCS/OMS PROPELLANT QUANTITY GAUGE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-614  
NASA FMEA #: 05-6L-2261-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 614  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-615  
NASA FMEA #: 05-6L-2261-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 615  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-616  
NASA FMEA #: 05-6L-2261-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 616  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-617  
NASA FMEA #: 05-6L-2261-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 617  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-618  
NASA FMEA #: 05-6L-2261-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 618  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-619  
NASA FMEA #: 05-6L-2261-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 619  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-620  
NASA FMEA #: 05-6L-2261-2

NASA DATA: ~~TIME~~  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 620  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-621  
NASA FMEA #: 05-6L-2261-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 621  
ITEM: DIODE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-622  
NASA FMEA #: 05-6L-2209-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 622  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-623  
NASA FMEA #: 05-6L-2209-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 623  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-624  
NASA FMEA #: 05-6L-2209-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 624  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-625  
NASA FMEA #: 05-6L-2209-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 625  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-626  
NASA FMEA #: 05-6L-2207-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 626  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-627  
NASA FMEA #: 05-6L-2207-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 627  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-628  
NASA FMEA #: 05-6L-2207-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 628  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-629  
NASA FMEA #: 05-6L-2207-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 629  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-630  
NASA FMEA #: 05-6L-2207-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 630  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-631  
NASA FMEA #: 05-6L-2207-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 631  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ /N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-632  
NASA FMEA #: 05-6L-2206-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 632  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-633  
NASA FMEA #: 05-6L-2206-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 633  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[ N ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

FIRST FAILURE IS NO EFFECT, SO NOT DETECTABLE, EXCEPT FOR AN MDM VALVE POSITION SIGNAL. BUT SINCE FSSRS DID NOT MENTION THAT SIGNAL, IOA ASSUMED SOFTWARE DOES NOT USE IT TO DETECT VALVE STUCK OPEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-633  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 663  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-634  
NASA FMEA #: 05-6L-2207-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 634  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-635  
NASA FMEA #: 05-6L-2207-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 635  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-636  
NASA FMEA #: 05-6L-2207-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 636  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-637  
NASA FMEA #: 05-6L-2207-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 637  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-638  
NASA FMEA #: 05-6L-2207-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 638  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-639  
NASA FMEA #: 05-6L-2207-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 639  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-640  
NASA FMEA #: 05-6L-2206-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 640  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-641  
NASA FMEA #: 05-6L-2206-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 641  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

FIRST FAILURE IS NO EFFECT, SO NOT DETECTABLE, EXCEPT FOR AN MDM VALVE POSITION SIGNAL. BUT SINCE FSSRS DID NOT MENTION THAT SIGNAL, IOA ASSUMED SOFTWARE DOES NOT USE IT TO DETECT VALVE STUCK OPEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-642  
NASA FMEA #: 05-6L-2208-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 642  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-643  
NASA FMEA #: 05-6L-2208-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 643  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-644  
NASA FMEA #: 05-6L-2007-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 644  
ITEM: FUSE, 1A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-645  
NASA FMEA #: 05-6L-2006-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 645  
ITEM: FUSE, 1A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-646  
NASA FMEA #: 05-6L-2007-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 646  
ITEM: FUSE, 1A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-647  
NASA FMEA #: 05-6L-2006-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 647  
ITEM: FUSE, 1A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-648  
NASA FMEA #: 05-6L-2015-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 648  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-649  
NASA FMEA #: 05-6L-2015-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 649  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-650  
NASA FMEA #: 05-6L-2015-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 650  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]    [   ]    [   ]    [   ]    [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-651  
NASA FMEA #: 05-6L-2015-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 651  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-652  
NASA FMEA #: 05-6L-2087-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 652  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-653  
NASA FMEA #: 05-6L-2087-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 653  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-654  
NASA FMEA #: 05-6L-2087-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 654  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-655  
NASA FMEA #: 05-6L-2087-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 655  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-656  
NASA FMEA #: 05-6L-2087-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 656  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-657  
NASA FMEA #: 05-6L-2087-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 657  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-658  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 658  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-659  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 659  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-660  
NASA FMEA #: 05-6L-2109-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 660  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-661  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 661  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-662  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 662  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 / 1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-664  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 664  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-665  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 665  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-666  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 666  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-667  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 667  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-668  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 668  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-669  
NASA FMEA #: 05-6L-2109-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 669  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-670  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 670  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 / 1R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N / N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-671  
NASA FMEA #: 05-6L-2086-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 671  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-672  
NASA FMEA #: 05-6L-2029-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 672  
ITEM: SWITCH, OMS LT/RT ENGINE ARM/PRESS (C3A1, S1/S2)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ ? ]	[ ? ]	[ ? ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ N ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ F ] [ P ] [ A ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS FAILING THE B SCREEN, AND THUS UPGRADING TO A CIL, SINCE THIS FAILURE IS NOT DETECTABLE EXCEPT DURING AN OMS BURN, WHICH COULD BE TOO LATE. IOA ALSO RECOMMENDS CONSIDERING BOTH CONTACT SETS IN THE FAILURE MODE. IOA CONCURS WITH NASA'S CRITICALITY, SINCE IT AGREES INDIRECTLY WITH OMS HARDWARE FMEA 03-3-4001-1. THIS NASA FMEA'S REDUNDANCY SCREENS WERE MISSING FROM THE LATEST AVAILABLE NASA REPORT. SINCE THIS FMEA DID NOT APPEAR IN NASA'S NEW CIL PACKAGE, IOA ASSUMES THAT NASA PASSED ALL OF THE SCREENS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-673  
NASA FMEA #: 05-6L-2029-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 673  
ITEM: SWITCH, OMS LT/RT ENGINE ARM/PRESS (C3A1, S1/S2)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ ? ]	[ ? ]	[ ? ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS FAILING THE B SCREEN, AND THUS UPGRADING TO A CIL, SINCE THIS FAILURE IS NOT DETECTABLE EXCEPT DURING AN OMS BURN, WHICH COULD BE TOO LATE. IOA ALSO RECOMMENDS CONSIDERING BOTH CONTACT SETS IN THE FAILURE MODE. IOA CONCURS WITH NASA'S CRITICALITY, SINCE IT AGREES INDIRECTLY WITH OMS HARDWARE FMEA 03-3-4001-1. THIS NASA FMEA'S REDUNDANCY SCREENS WERE MISSING FROM THE LATEST AVAILABLE NASA REPORT. SINCE THIS FMEA DID NOT APPEAR IN NASA'S NEW CIL PACKAGE, IOA ASSUMES THAT NASA PASSED ALL OF THE SCREENS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-674  
NASA FMEA #: 05-6L-2029-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 674  
ITEM: SWITCH, OMS LT/RT ENGINE ARM/PRESS (C3A1, S1/S2)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-675  
NASA FMEA #: 05-6L-2030-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 675  
ITEM: SWITCH, OMS LT/RT ENGINE CONTROL VLV

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-676  
NASA FMEA #: 05-6L-2030-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 676  
ITEM: SWITCH, OMS LT/RT ENGINE CONTROL VLV

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ /N ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS FAILING THE B SCREEN AND CONSIDERING BOTH POLES IN THE FAILURE MODE. NASA FAILED ONLY ONE POLE, CONSIDERING THE OTHER POLE AS REDUNDANT, WHEREAS IOA CONSIDERED THE WORST CASE FAILURE MODE BY FAILING A PART COMMON TO BOTH POLES (E.G. TOGGLE LEVER). NASA CONSIDERED ONE POLE TO BE STANDBY REDUNDANT TO THE OTHER AND SO HAD "NOT APPLICABLE" FOR B SCREEN. IOA BELIEVES FAILURE OF BOTH POLES WOULD NOT BE READILY DETECTABLE UNTIL IT IS TOO LATE. IOA CONCURS WITH NASA'S CRITICALITY, SINCE NASA'S CRIT AGREES INDIRECTLY WITH OMS HARDWARE FMEA 03-3-4001-1.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-677  
NASA FMEA #: 05-6L-2177-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 677  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-678  
NASA FMEA #: 05-6L-2177-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 678  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-679  
NASA FMEA #: 05-6L-2177-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 679  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-680  
NASA FMEA #: 05-6L-2177-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 680  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-681  
NASA FMEA #: 05-6L-2177-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 681  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-682  
NASA FMEA #: 05-6L-2177-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 682  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-683  
NASA FMEA #: 05-6L-2177-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 683  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-684  
NASA FMEA #: 05-6L-2177-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 684  
ITEM: CONTROLLER, REMOTE POWER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-685  
NASA FMEA #: 05-6L-2008-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 685  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS SPLITTING THIS FMEA INTO TWO FMEAS, SINCE THE FUSE IN THE STANDBY CIRCUIT IS STANDBY REDUNDANT TO THE FUSE IN THE ACTIVE CIRCUIT, AND THEREFORE THEIR B SCREENS WILL DIFFER ("NA" AND "P").

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-686  
NASA FMEA #: 05-6L-2008-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 686  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ NA ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ NA ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS SPLITTING THIS FMEA INTO TWO FMEAS, SINCE THE FUSE IN THE STANDBY CIRCUIT IS STANDBY REDUNDANT TO THE FUSE IN THE ACTIVE CIRCUIT, AND THEREFORE THEIR B SCREENS WILL DIFFER ("NA" AND "P").

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-687  
NASA FMEA #: 03-3-4581-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 687  
ITEM: SENSOR PRESSURE, OMS ENGINE PNEUMATIC PRESSURE  
NO.1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IF LOSE ALL REDUNDANCY, THE REAL STATUS OF THE OMS ENGINE GASEOUS NITROGEN TANK WILL BE UNAVAILABLE OR FALSELY INDICATED (LOSS OF N2) AND CAN RESULT IN FALSELY FAILING TWO OMS GN2 TANKS LEAKING OR FAILED, THEREFORE MISSION CAPABILITIES LOST OR ATO COULD BE CALLED, IMPLYING CRIT 3/2R.  
SEE FLIGHT RULE 6-40.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-688  
NASA FMEA #: 03-3-4581-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 688  
ITEM: SENSOR PRESSURE, OMS ENGINE PNEUMATIC PRESSURE  
NO.2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IF LOSE ALL REDUNDANCY, THE REAL STATUS OF THE OMS ENGINE GASEOUS NITROGEN TANK WILL BE UNAVAILABLE OR FALSELY INDICATED (LOSS OF N2) AND CAN RESULT IN FALSELY FAILING TWO OMS GN2 TANKS LEAKING OR FAILED, THEREFORE MISSION CAPABILITIES LOST OR ATO COULD BE CALLED, IMPLYING CRIT 3/2R.  
SEE FLIGHT RULE 6-40.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-689  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 689  
ITEM: SENSOR PRESSURE, OMS ENGINE REG OUT

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 / 2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]	[ ]	[ ]	[ ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THIS ITEM. THE CLOSEST NASA FMEA IS 03-3-4581-1 FOR "OMS ENGINE PNEUMATIC PRESSURE SENSOR" INSTEAD OF "OMS ENGINE REGULATOR OUTLET PRESSURE SENSOR".

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-690  
NASA FMEA #: 05-6L-2014-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 690  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-691  
NASA FMEA #: 05-6L-2014-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 691  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-692  
NASA FMEA #: 05-6L-2154-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 692  
ITEM: METER, RT/LT OME PRESSURE PC

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ] *
IOA	[ 3 / 3 ]	[   ]	[   ]	[   ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-693  
NASA FMEA #: 03-3-4081-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 693  
ITEM: SENSOR POSITION, BI-PROPELLANT VALVE 1

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]      [ P ]      [ P ]      [ P ]      [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

FALSE INDICATION OF VALVE POSITION COULD LEAD TO LIMITING OMS ENGINE USE, ESPECIALLY WHEN LITTLE TIME TO VERIFY. THE ENGINE WILL BE USED ONLY IF THE OTHER ENGINE HAS FAILED AND THEN ONLY FOR DEORBIT BURN. LOSS OF ALL REDUNDANCY DURING LIFTOFF OR ONORBIT PHASE WOULD LEAD TO FAILURE TO REACH DESIRED ALTITUDE (LIMIT ALTITUDE TO RCS REDLINES TO ENSURE DEORBIT CAPABILITY) SO COULD LOSE SOME ALTITUDE-SENSITIVE MISSIONS, IMPLYING CRIT 3/2R. NASA REVIEW COMMENT'S ACTION ITEM PARTIALLY SUPPORTS THIS: "WILL USE ENGINE IF LVDT > 70%. BETWEEN 8 AND 70% WILL NOT USE ENGINE UNLESS NO OTHER OPTION AVAILABLE FOR DEORBIT."  
SEE OMS TRAINING MANUAL 2102 PAGE 79.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-694  
NASA FMEA #: 03-3-4081-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 694  
ITEM: SENSOR POSITION, BI-PROPELLANT VALVE 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

FALSE INDICATION OF VALVE POSITION COULD LEAD TO LIMITING OMS ENGINE USE, ESPECIALLY WHEN LITTLE TIME TO VERIFY. THE ENGINE WILL BE USED ONLY IF THE OTHER ENGINE HAS FAILED AND THEN ONLY FOR DEORBIT BURN. LOSS OF ALL REDUNDANCY DURING LIFTOFF OR ONORBIT PHASE WOULD LEAD TO FAILURE TO REACH DESIRED ALTITUDE (LIMIT ALTITUDE TO RCS REDLINES TO ENSURE DEORBIT CAPABILITY) SO COULD LOSE SOME ALTITUDE-SENSITIVE MISSIONS, IMPLYING CRIT 3/2R. NASA REVIEW COMMENT'S ACTION ITEM PARTIALLY SUPPORTS THIS: "WILL USE ENGINE IF LVDT > 70%. BETWEEN 8 AND 70% WILL NOT USE ENGINE UNLESS NO OTHER OPTION AVAILABLE FOR DEORBIT."  
SEE OMS TRAINING MANUAL 2102 PAGE 79.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-695  
NASA FMEA #: 03-3-4805-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 695  
ITEM: SENSOR PRESSURE, OMS ENGINE CHAMBER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-696  
NASA FMEA #: 03-3-4803-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 696  
ITEM: SENSOR PRESSURE, OMS ENGINE FUEL INLET PRESS

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-697  
NASA FMEA #: 03-3-4803-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 697  
ITEM: SENSOR PRESSURE, OMS ENGINE OX INLET PRESS

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-698  
NASA FMEA #: 03-3-4802-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 698  
ITEM: SENSOR TEMPERATURE ENGINE FUEL FEED LINE

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS UPGRADING AND ADDING THIS FMEA TO THE CIL LIST BECAUSE OF AN ABORT CRIT 1/1. THE ASSOCIATED ENGINE TEMPERATURES OUTSIDE THE DESIRED LIMITS (<25 F OR >130 F), UNLESS SENSOR FAILURE WAS DETERMINED. FAILURE OF ALL REDUNDANCY (THE OTHER OMS ENGINE'S SENSOR FAILED) COULD LEAD TO INCORRECTLY FAILING BOTH OMS ENGINES AND POSSIBLE EARLY MISSION TERMINATION AND LOSS OF MISSION. HOWEVER, THIS IS AN ESPECIALLY SERIOUS CRITICALITY 1/1 DURING ABORTS BECAUSE OF INSUFFICIENT TIME TO DETERMINE FAILURE. SEE JSC 20923 PCN-1 RULE 6-3.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-699  
NASA FMEA #: 03-3-4804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 699  
ITEM: SENSOR TEMPERATURE, ENGINE FUEL INJECTOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-700  
NASA FMEA #: 03-3-4802-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 700  
ITEM: SENSOR TEMPERATURE, ENGINE OX VALVE

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-701  
NASA FMEA #: 03-3-4801-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 701  
ITEM: SENSOR TEMPERATURE, OX ENGINE INLET

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-702  
NASA FMEA #: 03-3-6407-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 702  
ITEM: SENSOR POSITION, ACTIVE PITCH ACTUATOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-703  
NASA FMEA #: 03-3-6407-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 703  
ITEM: SENSOR POSITION, ACTIVE YAW ACTUATOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-704  
NASA FMEA #: 03-3-6407-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 704  
ITEM: SENSOR POSITION, STANDBY PITCH ACTUATOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-705  
NASA FMEA #: 03-3-6407-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 705  
ITEM: SENSOR POSITION, STANDBY YAW ACTUATOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-706  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 706  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-707  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 707  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-708  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 708  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]      [ P ]      [ P ]      [ P ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-709  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 709  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-710  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 710  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-711  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 711  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-712  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 712  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-713  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 713  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-714  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 714  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]      [ P ]      [ P ]      [ P ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-715  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 715  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-716  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 716  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-717  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 717  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-718  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 718  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-719  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 719  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-720  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 720  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-721  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 721  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-722  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 722  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-723  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 723  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-724  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 724  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]      [ P ]      [ P ]      [ P ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-725  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 725  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-726  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 726  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-727  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 727  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-728  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 728  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-729  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 729  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-730  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 730  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-731  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 731  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-732  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 732  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

REPORT DATE 2/26/88

C-700



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-733  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 733  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-734  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 734  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-735  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 735  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-736  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 736  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-737  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 737  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ / ]	[ ]	[ ]	[ ]	[ ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-738  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 738  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-739  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 739  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-740  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 740  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]      [ P ]      [ P ]      [ P ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-741  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 741  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-742  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 742  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-743  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 743  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-744  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 744  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-745  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 745  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-746  
NASA FMEA #: 05-6L-2210-2

NASA DATA: \_\_\_\_\_  
BASELINE [ ] \_\_\_\_\_  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 746  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-747  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 747  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-748  
NASA FMEA #: 05-6L-2210-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 748  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-749  
NASA FMEA #: 05-6L-2210-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 749  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-750  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 750  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-751  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 751  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-752  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 752  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-753  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 753  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-754  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 754  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-755  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 755  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-756  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 756  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-757  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 757  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-758  
NASA FMEA #: 05-6L-2016-1

NASA DATA: ~~CONFIDENTIAL~~  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 758  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-759  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 759  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-760  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 760  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-761  
NASA FMEA #: 05-6L-2016-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 761  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-762  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 762  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-763  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 763  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
 ASSESSMENT ID: OMS-764  
 NASA FMEA #: 05-6L-2012-1

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: OMS  
 MDAC ID: 764  
 ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLER

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

## **REMARKS:**

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-765  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 765  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-766  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 766  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[ / ]	[   ]	[ N ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [   ] [   ] [   ] [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-767  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 767  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[ N ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-768  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 768  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-769  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 769  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-770  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 770  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-771  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 771  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-772  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 772  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-773  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 773  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-774  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 774  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-775  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 775  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# **APPENDIX C** **ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-776  
NASA FMEA #: 05-6L-2012-1

NASA DATA:                       
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 776  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## **REMARKS:**

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-777  
NASA FMEA #: 05-6L-2012-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 777  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-778  
NASA FMEA #: 05-6L-2009-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 778  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 / 2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-779  
NASA FMEA #: 05-6L-2009-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 779  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-780  
NASA FMEA #: 05-6L-2009-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 780  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-781  
NASA FMEA #: 05-6L-2009-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 781  
ITEM: FUSE, 3A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-782  
NASA FMEA #: 03-3-7001-1

NASA DATA: [ ]  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 782  
ITEM: HEATER, LT/RT ENGINE SERVICE PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-783  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 783  
ITEM: HEATER, LT/RT ENGINE SERVICE PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-784  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 784  
ITEM: HEATER, LT/RT ENGINE SERVICE PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-785  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 785  
ITEM: HEATER, LT/RT ENGINE SERVICE PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-786  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 786  
ITEM: HEATER, LT/RT GSE SERVICE PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-787  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 787  
ITEM: HEATER, LT/RT GSE SERVICE PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [   ] [   ] [   ] [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-788  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 788  
ITEM: HEATER, LT/RT GSE SERVICE PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-789  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 789  
ITEM: HEATER, LT/RT GSE SERVICE PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-790  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 790  
ITEM: HEATER, LT/RT LOWER INBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-791  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 791  
ITEM: HEATER, LT/RT LOWER INBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-792  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 792  
ITEM: HEATER, LT/RT LOWER INBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-793  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 793  
ITEM: HEATER, LT/RT LOWER INBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-794  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 794  
ITEM: HEATER, LT/RT OME COMPARTMENT GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-795  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 795  
ITEM: HEATER, LT/RT OME COMPARTMENT GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-796  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 796  
ITEM: HEATER, LT/RT OME COMPARTMENT GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ]
COMPARE	[   /   ]	[   ]	[   ]	[   ]	[   ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-797  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 797  
ITEM: HEATER, LT/RT OME COMPARTMENT GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-798  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 798  
ITEM: HEATER, LT/RT OME OUTBOARD & INBOARD COVER GROUP  
1

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-799  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 799  
ITEM: HEATER, LT/RT OME OUTBOARD & INBOARD COVER GROUP  
1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-800  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 800  
ITEM: HEATER, LT/RT OME OUTBOARD & INBOARD COVER GROUP  
2

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-801  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 801  
ITEM: HEATER, LT/RT OME OUTBOARD & INBOARD COVER GROUP  
2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-802  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 802  
ITEM: HEATER, LT/RT OMS ENGINE COMPARTMENT GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-803  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 803  
ITEM: HEATER, LT/RT OMS ENGINE COMPARTMENT GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-804  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 804  
ITEM: HEATER, LT/RT OMS ENGINE COMPARTMENT GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-805  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 805  
ITEM: HEATER, LT/RT OMS ENGINE COMPARTMENT GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-806  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 806  
ITEM: HEATER, LT/RT OMS KEEL WEB GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

## APPENDIX C

### ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-807  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
 BASELINE [    ]  
 NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 807  
ITEM: HEATER, LT/RT OMS KEEL WEB GROUP 1

LEAD ANALYST: W.A. HAUFLE

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT HDW/FUNC		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[ ]
INADEQUATE	[ ]

REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-808  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 808  
ITEM: HEATER, LT/RT OMS KEEL WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-809  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 809  
ITEM: HEATER, LT/RT OMS KEEL WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-810  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 810  
ITEM: HEATER, LT/RT OMS TEST PORT GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-812  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 812  
ITEM: HEATER, LT/RT OMS TEST PORT GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

C-4



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-813  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 813  
ITEM: HEATER, LT/RT OMS TEST PORT GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-814  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 814  
ITEM: HEATER, LT/RT OX PRESS PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-815  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 815  
ITEM: HEATER, LT/RT OX PRESS PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-816  
NASA FMEA #: 03-3-7001-1

NASA DATA:   
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 816  
ITEM: HEATER, LT/RT OX PRESS PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-817  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 817  
ITEM: HEATER, LT/RT OX PRESS PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-818  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 818  
ITEM: HEATER, LT/RT RCS HOUSING DRAIN PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-819  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 819  
ITEM: HEATER, LT/RT RCS HOUSING DRAIN PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-820  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 820  
ITEM: HEATER, LT/RT RCS HOUSING DRAIN PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-821  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 821  
ITEM: HEATER, LT/RT RCS HOUSING DRAIN PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[ N ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-822  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 822  
ITEM: HEATER, LT/RT RCS HOUSING PITCH DOWN GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-823  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 823  
ITEM: HEATER, LT/RT RCS HOUSING PITCH DOWN GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-824  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 824  
ITEM: HEATER, LT/RT RCS HOUSING PITCH DOWN GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-825  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 825  
ITEM: HEATER, LT/RT RCS HOUSING PITCH DOWN GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-826  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 826  
ITEM: HEATER, LT/RT RCS HOUSING PITCH UP GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 / 2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-827  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 827  
ITEM: HEATER, LT/RT RCS HOUSING PITCH UP GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-828  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 828  
ITEM: HEATER, LT/RT RCS HOUSING PITCH UP GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[   /   ]	[ N ]	[ N ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-829  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 829  
ITEM: HEATER, LT/RT RCS HOUSING PITCH UP GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-830  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 830  
ITEM: HEATER, LT/RT RCS HOUSING VERNIER GROUP 1

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-831  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 831  
ITEM: HEATER, LT/RT RCS HOUSING VERNIER GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-832  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 832  
ITEM: HEATER, LT/RT RCS HOUSING VERNIER GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-833  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 833  
ITEM: HEATER, LT/RT RCS HOUSING VERNIER GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-834  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 834  
ITEM: HEATER, LT/RT RCS HOUSING YAW GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-835  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 835  
ITEM: HEATER, LT/RT RCS HOUSING YAW GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[ N ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-836  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 836  
ITEM: HEATER, LT/RT RCS HOUSING YAW GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-837  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 837  
ITEM: HEATER, LT/RT RCS HOUSING YAW GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-838  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 838  
ITEM: HEATER, LT/RT UPPER INBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 2R ]		[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 / 2R ]		[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]		[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-839  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 839  
ITEM: HEATER, LT/RT UPPER INBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-840  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 840  
ITEM: HEATER, LT/RT UPPER INBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 / 2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-841  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 841  
ITEM: HEATER, LT/RT UPPER INBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-842  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 842  
ITEM: HEATER, LT/RT UPPER OUTBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-843  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 843  
ITEM: HEATER, LT/RT UPPER OUTBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-844  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 844  
ITEM: HEATER, LT/RT UPPER OUTBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-845  
NASA FMEA #: 03-3-7001-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 845  
ITEM: HEATER, LT/RT UPPER OUTBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-846  
NASA FMEA #: 05-6L-2134-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 846  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ N ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ P ] [ ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-847  
NASA FMEA #: 05-6L-2134-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 847  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-848  
NASA FMEA #: 05-6L-2134-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 848  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ N ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ P ] [ ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-849  
NASA FMEA #: 05-6L-2134-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 849  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-850  
NASA FMEA #: 05-6L-2134-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 850  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-851  
NASA FMEA #: 05-6L-2134-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 851  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-852  
NASA FMEA #: 05-6L-2134-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 852  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ N ]	[ ]	[ ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ P ] [ ]  
(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE (CRIT 3 - ALTERNATIVE ACTION AND TIME TO ABORT AFTER SECOND FAILURE). NOT DETECTABLE UNLESS MULTIPLE HEATERS FAILED ON." SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-853  
NASA FMEA #: 05-6L-2134-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 853  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-854  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 854  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-855  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 855  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-856  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 856  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-857  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 857  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-858  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 858  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-859  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 859  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-860  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 860  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-861  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 861  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-862  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 862  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-863  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 863  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-864  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 864  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-865  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 865  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-866  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 866  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-867  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 867  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-868  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 868  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-869  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 869  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-870  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 870  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-871  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 871  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-872  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 872  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-873  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 873  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-874  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 874  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-875  
NASA FMEA #: 05-6L-2089-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 875  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-876  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 876  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-877  
NASA FMEA #: 05-6L-2089-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 877  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-878  
NASA FMEA #: 05-6L-2088-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 878  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-879  
NASA FMEA #: 05-6L-2088-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 879  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
 ASSESSMENT ID: OMS-880  
 NASA FMEA #: 05-6L-2088-1

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: OMS  
 MDAC ID: 880  
 ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:  
 NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-881  
NASA FMEA #: 05-6L-2088-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 881  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-882  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 882  
ITEM: SENSOR TEMPERATURE, COVER THERMO. TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-883  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 883  
ITEM: SENSOR TEMPERATURE, ENGINE SERVICE PANEL

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-884  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 884  
ITEM: SENSOR TEMPERATURE, GSE SERVICE PANEL

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-885  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 885  
ITEM: SENSOR TEMPERATURE, LEFT/RIGHT SKIN TEMP 38

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-886  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 886  
ITEM: SENSOR TEMPERATURE, OMS ENGINE COMPT B.H.S. (POD BASE)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC			REDUNDANCY SCREENS			CIL ITEM
				A	B	C	
NASA	[	/	]	[	[	[	] *
IOA	[ 3	/3	]	[	[	[	
COMPARE	[ N	/N	]	[	[	[	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-887  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 887  
ITEM: SENSOR TEMPERATURE, OX DRAIN PANEL TEMP 1 & TEMP 2

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-888  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 888  
ITEM: SENSOR TEMPERATURE, RCS HOUSING VERNIER  
COMPARTMENT TEMP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-889  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 889  
ITEM: SENSOR TEMPERATURE, RCS HOUSING VERNIER  
COMPARTMENT TEMP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-890  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 890  
ITEM: SENSOR TEMPERATURE, RCS PRESS PANEL SPRT TEMP 1  
LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-891  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 891  
ITEM: SENSOR TEMPERATURE, RCS PRESS PANEL SPRT TEMP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-892  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 892  
ITEM: SENSOR TEMPERATURE, UPPER Y-WEB INBOARD

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-893  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 893  
ITEM: SENSOR TEMPERATURE, UPPER Y-WEB OUTBOARD

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS GENERATING A FMEA FOR THIS ITEM, POSSIBLY GROUPED WITH OTHER POD TEMP SENSORS. NASA HAS NO APPARENT FMEA TO EXPLICITLY COVER THESE ITEMS. THE CLOSEST FMEA IS 03-3-2804-1 FOR CROSSFEED INSTEAD OF POD TEMPERATURE SENSORS.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-894  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 894  
ITEM: THERMAL SWITCH, LT/RT GSE SERVICE PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-895  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 895  
ITEM: THERMAL SWITCH, LT/RT GSE SERVICE PANEL GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-896  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 896  
ITEM: THERMAL SWITCH, LT/RT GSE SERVICE PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-897  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 897  
ITEM: THERMAL SWITCH, LT/RT GSE SERVICE PANEL GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[ ]
INADEQUATE	[ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-898  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 898  
ITEM: THERMAL SWITCH, LT/RT KEEL WEB HEATER SYSTEM  
GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-899  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 899  
ITEM: THERMAL SWITCH, LT/RT KEEL WEB HEATER SYSTEM  
GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[ ]
INADEQUATE	[ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-900  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 900  
ITEM: THERMAL SWITCH, LT/RT KEEL WEB HEATER SYSTEM  
GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-901  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 901  
ITEM: THERMAL SWITCH, LT/RT KEEL WEB HEATER SYSTEM  
GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[   ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]      [ P ]      [ P ]      [ P ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
 ASSESSMENT ID: OMS-902  
 NASA FMEA #: 03-3-7002-1

NASA DATA:  
 BASELINE [ ]  
 NEW [ X ]

SUBSYSTEM: OMS  
 MDAC ID: 902  
 ITEM: THERMAL SWITCH, LT/RT LOWER INBOARD Y WEB GROUP 1  
 LEAD ANALYST: W.A. HAUFLE

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
 (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
 INADEQUATE [ ]

REMARKS:  
 NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-903  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 903  
ITEM: THERMAL SWITCH, LT/RT LOWER INBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-904  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 904  
ITEM: THERMAL SWITCH, LT/RT LOWER INBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-905  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 905  
ITEM: THERMAL SWITCH, LT/RT LOWER INBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-906  
NASA FMEA #: 03-3-7002-1

NASA DATA: ~~ASSESSMENT~~  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 906  
ITEM: THERMAL SWITCH, LT/RT OME COMPARTMENT GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-907  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 907  
ITEM: THERMAL SWITCH, LT/RT OME COMPARTMENT GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-908  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 908  
ITEM: THERMAL SWITCH, LT/RT OME COMPARTMENT GROUP 2

LEAD ANALYST: W.A. HAUFLER

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-909  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 909  
ITEM: THERMAL SWITCH, LT/RT OME COMPARTMENT GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-910  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 910  
ITEM: THERMAL SWITCH, LT/RT OME COVER GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 2R ]		[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 / 2R ]		[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	1/01/88	NASA DATA:
ASSESSMENT ID:	OMS-911	BASELINE [   ]
NASA FMEA #:	03-3-7002-2	NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 911  
ITEM: THERMAL SWITCH, LT/RT OME COVER GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[   ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[   ]
INADEQUATE	[   ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-912  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 912  
ITEM: THERMAL SWITCH, LT/RT OME COVER GROUP 2

LEAD ANALYST: W.A. HAUFLER

## **ASSESSMENT:**

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3	/2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3	/2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[	/ ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## **REMARKS:**

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-913  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 913  
ITEM: THERMAL SWITCH, LT/RT OME COVER GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-914  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 914  
ITEM: THERMAL SWITCH, LT/RT RCS HOUSING GROUP 1

LEAD ANALYST: W.A. HAUFLER

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## **REMARKS:**

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	1/01/88	NASA DATA:	
ASSESSMENT ID:	OMS-915	BASELINE	[    ]
NASA FMEA #:	03-3-7002-2	NEW	[ X ]
SUBSYSTEM:	OMS		
MDAC ID:	915		
ITEM:	THERMAL SWITCH, LT/RT RCS HOUSING GROUP 1		
LEAD ANALYST:	W.A. HAUFLE		

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-916  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 916  
ITEM: THERMAL SWITCH, LT/RT RCS HOUSING GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-917  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 917  
ITEM: THERMAL SWITCH, LT/RT RCS HOUSING GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-918  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 918  
ITEM: THERMAL SWITCH, LT/RT UPPER INBOARD Y-WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-919  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 919  
ITEM: THERMAL SWITCH, LT/RT UPPER INBOARD Y-WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-920  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 920  
ITEM: THERMAL SWITCH, LT/RT UPPER INBOARD Y-WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-921  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 921  
ITEM: THERMAL SWITCH, LT/RT UPPER INBOARD Y-WEB GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

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# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-922  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 922  
ITEM: THERMAL SWITCH, LT/RT UPPER OUTBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[ / ]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-923  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 923  
ITEM: THERMAL SWITCH, LT/RT UPPER OUTBOARD Y WEB GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE."

IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-924  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 924  
ITEM: THERMAL SWITCH, LT/RT UPPER OUTBOARD Y WEB GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-925  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 925  
ITEM: THERMAL SWITCH, LT/RT UPPER OUTBOARD Y WEB GROUP  
2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS RAISING THIS CRITICALITY TO 2/1R SINCE THIS FAILURE IS ONE FAILURE AWAY FROM LOSS OF CREW/VEHICLE, AND DAMAGE MAY OCCUR BEFORE IT IS DETECTED. FIRST FAILURE RESULTS IN THE ASSOCIATED HEATER SET FAILED ON. A SECOND FAILURE IN THE SAME HEATER GROUP WOULD RESULT IN BOTH ELEMENTS OF TWO OR MORE HEATERS ON SIMULTANEOUSLY WHEN THE REDUNDANT HEATER GROUP IS ACTIVE. THIS RESULTS IN A TEMPERATURE EXCEEDING THE POD STRUCTURAL QUALIFIED LIMIT OF 425F IN APPROXIMATELY TWO MINUTES AND POSSIBLE LOSS OF CREW/VEHICLE DUE TO STRUCTURAL DAMAGE. NASA'S BASELINE FMEA HAZARDS FIELD PARTIALLY SUPPORTS THIS: "FAILED ON HEATER MAY CAUSE POTENTIAL FRACTURE MECHANICAL PROBLEM DEPENDING ON HEATER LOCATION AND APPLICATION OF INCREASED PROPELLANT PRESSURE." IOA ALSO RECOMMENDS SPLITTING THIS FMEA, BECAUSE NASA COVERED POD AND CROSSFEED ITEMS (THERMAL SWITCHES) IN THE SAME FMEA, BUT THEIR CRITICALITIES AND EFFECTS ARE QUITE DIFFERENT. SEE FLIGHT RULES 6-72A AND JSC 18549 NASA HEATER BOOK.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-926  
NASA FMEA #: 05-6L-2031-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 926  
ITEM: SWITCH, TOGGLE RCS/OMS HEATER LT/RT POD GROUP1

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS UPGRADING THE CRIT TO 2/1R, AND PASSING THE B SCREEN. NASA FAILED ONLY ONE POLE OR CONTACT SET, CONSIDERING THE OTHER POLE AS REDUNDANT, WHEREAS IOA CONSIDERED THE WORST CASE FAILURE MODE BY FAILING A PART COMMON TO BOTH POLES (E.G. TOGGLE LEVER). THIS IS THE REASON FOR IOA'S HIGHER CRITICALITY AND NASA'S FAILED B SCREEN, SINCE ONE POLE MAY BE UNDETECTABLE, BUT NOT BOTH.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-927  
NASA FMEA #: 05-6L-2031-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 927  
ITEM: SWITCH, TOGGLE RCS/OMS HEATER LT/RT POD GROUP 2

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[ X ]
COMPARE	[ N /N ]	[    ]	[ N ]	[    ]	[    ]

## RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS UPGRADING THE CRIT TO 2/1R, AND PASSING THE B SCREEN. NASA FAILED ONLY ONE POLE OR CONTACT SET, CONSIDERING THE OTHER POLE AS REDUNDANT, WHEREAS IOA CONSIDERED THE WORST CASE FAILURE MODE BY FAILING A PART COMMON TO BOTH POLES (E.G. TOGGLE LEVER). THIS IS THE REASON FOR IOA'S HIGHER CRITICALITY AND NASA'S FAILED B SCREEN, SINCE ONE POLE MAY BE UNDETECTABLE, BUT NOT BOTH.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-928  
NASA FMEA #: 05-6L-2031-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 928  
ITEM: SWITCH, TOGGLE, RCS/OMS HEATER LT/RT POD GROUP 1

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-929  
NASA FMEA #: 05-6L-2031-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 929  
ITEM: SWITCH, TOGGLE, RCS/OMS HEATER LT/RT POD GROUP 2

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-930  
NASA FMEA #: 05-6L-2137-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
NDAC ID: 930  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-931  
NASA FMEA #: 05-6L-2137-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 931  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA IMPLIES, WITH A B SCREEN OF "NA" (NOT APPLICABLE), THAT THIS ITEM IS STANDBY REDUNDANT TO SOME OTHER ITEM. IOA DISAGREES AND RECOMMENDS PASSING THE B SCREEN, SINCE THIS DRIVER OPERATES NORMALLY IN THE STRING, NOT PASSIVELY WAITING FOR ANOTHER ITEM TO FAIL BEFORE IT OPERATES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-932  
NASA FMEA #: 05-6L-2137-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 932  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-933  
NASA FMEA #: 05-6L-2137-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 933  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

## REMARKS:

NASA IMPLIES, WITH A B SCREEN OF "NA" (NOT APPLICABLE), THAT THIS ITEM IS STANDBY REDUNDANT TO SOME OTHER ITEM. IOA DISAGREES AND RECOMMENDS PASSING THE B SCREEN, SINCE THIS DRIVER OPERATES NORMALLY IN THE STRING, NOT PASSIVELY WAITING FOR ANOTHER ITEM TO FAIL BEFORE IT OPERATES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-934  
NASA FMEA #: 05-6L-2137-1

NASA DATA: ~~SEE REPORT~~  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 934  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES. ~~REMARKS FROM NASA FMEA REPORT ARE:~~

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-935  
NASA FMEA #: 05-6L-2137-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 935  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA IMPLIES, WITH A B SCREEN OF "NA" (NOT APPLICABLE), THAT THIS ITEM IS STANDBY REDUNDANT TO SOME OTHER ITEM. IOA DISAGREES AND RECOMMENDS PASSING THE B SCREEN, SINCE THIS DRIVER OPERATES NORMALLY IN THE STRING, NOT PASSIVELY WAITING FOR ANOTHER ITEM TO FAIL BEFORE IT OPERATES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-936  
NASA FMEA #: 05-6L-2137-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 936  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[ / ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-937  
NASA FMEA #: 05-6L-2137-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 937  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA IMPLIES, WITH A B SCREEN OF "NA" (NOT APPLICABLE), THAT THIS ITEM IS STANDBY REDUNDANT TO SOME OTHER ITEM. IOA DISAGREES AND RECOMMENDS PASSING THE B SCREEN, SINCE THIS DRIVER OPERATES NORMALLY IN THE STRING, NOT PASSIVELY WAITING FOR ANOTHER ITEM TO FAIL BEFORE IT OPERATES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-938  
NASA FMEA #: 05-6L-2137-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 938  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-939  
NASA FMEA #: 05-6L-2137-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 939  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA IMPLIES, WITH A B SCREEN OF "NA" (NOT APPLICABLE), THAT THIS ITEM IS STANDBY REDUNDANT TO SOME OTHER ITEM. IOA DISAGREES AND RECOMMENDS PASSING THE B SCREEN, SINCE THIS DRIVER OPERATES NORMALLY IN THE STRING, NOT PASSIVELY WAITING FOR ANOTHER ITEM TO FAIL BEFORE IT OPERATES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-940  
NASA FMEA #: 05-6L-2137-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 940  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-941  
NASA FMEA #: 05-6L-2137-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 941  
ITEM: DRIVER, HYBRID

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ NA ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[ N ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA IMPLIES, WITH A B SCREEN OF "NA" (NOT APPLICABLE), THAT THIS ITEM IS STANDBY REDUNDANT TO SOME OTHER ITEM. IOA DISAGREES AND RECOMMENDS PASSING THE B SCREEN, SINCE THIS DRIVER OPERATES NORMALLY IN THE STRING, NOT PASSIVELY WAITING FOR ANOTHER ITEM TO FAIL BEFORE IT OPERATES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-942  
NASA FMEA #: 05-6L-2019-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 942  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-943  
NASA FMEA #: 05-6L-2019-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 943  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-944  
NASA FMEA #: 05-6L-2019-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 944  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-945  
NASA FMEA #: 05-6L-2019-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 945  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-946  
NASA FMEA #: 05-6L-2019-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 946  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-947  
NASA FMEA #: 05-6L-2019-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 947  
ITEM: FUSE, 10A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-948  
NASA FMEA #: 05-6L-2018-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 948  
ITEM: FUSE, 1A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-949  
NASA FMEA #: 05-6L-2018-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 949  
ITEM: FUSE, 1A

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-950  
NASA FMEA #: 05-6L-2020-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 950  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-951  
NASA FMEA #: 05-6L-2020-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 951  
ITEM: FUSE, 20A

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-952  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 952  
ITEM: FUEL AND OXIDIZER LOWER CENTER FEED LINE (XFEED)  
HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-953  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 953  
ITEM: FUEL AND OXIDIZER LOWER CENTER FEED LINE (XFEED)  
HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[   /   ]	[ N ]	[   ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[   /   ]   [   ]   [   ]   [   ]   [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-954  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 954  
ITEM: FUEL AND OXIDIZER LOWER LEFT FEED LINE (XFEED)  
HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-955  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 955  
ITEM: FUEL AND OXIDIZER LOWER LEFT FEED LINE (XFEED)  
HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-956  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 956  
ITEM: FUEL AND OXIDIZER LOWER RIGHT FEED LINE (XFEED)  
HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-957  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 957  
ITEM: FUEL AND OXIDIZER LOWER RIGHT FEED LINE (XFEED)  
HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-958  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 958  
ITEM: FUEL HI POINT BLEED LINE HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-959  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 959  
ITEM: FUEL HI POINT BLEED LINE HEATER ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-960  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 960  
ITEM: FUEL HI POINT BLEED LINE T-4 UMBILICAL HEATER  
(A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-961  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 961  
ITEM: FUEL HI POINT BLEED LINE T-4 UMBILICAL HEATER  
(A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-962  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 962  
ITEM: L FUEL AND OXIDIZER LOW POINT DRAIN LINE HEATER  
ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-963  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 963  
ITEM: L FUEL AND OXIDIZER LOW POINT DRAIN LINE HEATER  
ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-964  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 964  
ITEM: LEFT FUEL AND OXIDIZER FLEX LINE HEATER ELEMENTS  
(A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-965  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 965  
ITEM: LEFT FUEL AND OXIDIZER FLEX LINE HEATER ELEMENTS  
(A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-966  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 966  
ITEM: OXIDIZER HI POINT BLEED LINE HEATER ELEMENT  
(A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-967  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 967  
ITEM: OXIDIZER HI POINT BLEED LINE HEATER ELEMENT  
(A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-968  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 968  
ITEM: OXIDIZER HI POINT BLEED LINE T-4 UMBILICAL  
HEATER (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-969  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 969  
ITEM: OXIDIZER HI POINT BLEED LINE T-4 UMBILICAL  
HEATER (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT  
FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-970  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 970  
ITEM: R FUEL AND OXIDIZER LOW POINT DRAIN LINE HEATER  
ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-971  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 971  
ITEM: R FUEL AND OXIDIZER LOW POINT DRAIN LINE HEATER  
ELEMENT (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-972  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [   ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 972  
ITEM: RIGHT FUEL AND OXIDIZER FLEX LINE HEATER  
ELEMENTS (A/B)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

CRITICALITY FLIGHT HDW/FUNC		REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[   ] *
IOA	[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ N ]	[   ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [   ] [   ] [   ] [   ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]  
INADEQUATE [   ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-973  
NASA FMEA #: 03-3-7011-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 973  
ITEM: RIGHT FUEL AND OXIDIZER FLEX LINE HEATER  
ELEMENTS (A/B)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS DELETING THESE FMEAS, SINCE HEATER ELEMENTS CANNOT FAIL CLOSED OR SHORT SUCH THAT THEY ARE CONTINUOUSLY ON.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-974  
NASA FMEA #: 05-6L-2136-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 974  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ N ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-975  
NASA FMEA #: 05-6L-2136-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 975  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-976  
NASA FMEA #: 05-6L-2136-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 976  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ F ]	[ P ]	[ X ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ F ]	[ X ]
COMPARE	[ / ]	[ ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-977  
NASA FMEA #: 05-6L-2136-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 977  
ITEM: RELAY

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-978  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 978  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-979  
NASA FMEA #: 05-6L-2094-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 979  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-980  
NASA FMEA #: 05-6L-2094-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 980  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-981  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 981  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-982  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 982  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ / ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-983  
NASA FMEA #: 05-6L-2094-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 983  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-984  
NASA FMEA #: 05-6L-2094-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 984  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-985  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 985  
ITEM: RESISTOR, 1.2K 2W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-986  
NASA FMEA #: 05-6L-2093-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 986  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-987  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 987  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-988  
NASA FMEA #: 05-6L-2093-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 988  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
	FLIGHT	HDW/FUNC	A	B	C	
NASA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]		[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]		[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-989  
NASA FMEA #: NONE

NASA DATA:  
BASELINE [    ]  
NEW [    ]

SUBSYSTEM: OMS  
MDAC ID: 989  
ITEM: RESISTOR, 5.1K 1/4W

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[    /    ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NO ISSUE. IOA IDENTIFIED A NONCREDIBLE FAILURE MODE.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-990  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 990  
ITEM: AFT FUSELAGE FUEL HI POINT BLEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-990A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 990  
ITEM: AFT FUSELAGE FUEL HI POINT BLEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-991  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 991  
ITEM: AFT FUSELAGE OXIDIZER HI POINT BLEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-991A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 991  
ITEM: AFT FUSELAGE OXIDIZER HI POINT BLEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-992  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 992  
ITEM: BHD FUEL HI POINT BLEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-992A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 992  
ITEM: BHD FUEL HI POINT BLEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-993  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 993  
ITEM: BHD OXIDIZER HI POINT BLEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-993A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 993  
ITEM: BHD OXIDIZER HI POINT BLEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-994  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 994  
ITEM: CENTER - AFT FUSELAGE OXIDIZER XFEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 / 2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]	[ ]	[ ]	[ ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURES OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-994A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 994  
ITEM: CENTER - AFT FUSELAGE OXIDIZER XFEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 / 2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]	[    ]	[    ]	[    ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURES OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-995  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 995  
ITEM: LEFT AFT FUEL XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-995A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 995  
ITEM: LEFT AFT FUEL XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-996  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 996  
ITEM: LEFT AFT FUSELAGE LOW POINT OXIDIZER DRAIN LINE  
TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-996A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 996  
ITEM: LEFT AFT FUSELAGE LOW POINT OXIDIZER DRAIN LINE  
TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-997  
NASA FMEA #: 03-3-7801-1

NASA DATA: \_\_\_\_\_  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 997  
ITEM: LEFT - AFT FUSELAGE OXIDIZER XFEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 / 2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]      [    ]      [    ]      [    ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURES OMS 11.5A NOTES 2,3,4.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-997A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 997  
ITEM: LEFT - AFT FUSELAGE OXIDIZER XFEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 / 2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]	[    ]	[    ]	[    ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURE OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-998  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 998  
ITEM: LEFT AFT OXIDIZER XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 / 2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N / N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]    [    ]    [    ]    [    ]    [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.

SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURE OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-998A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 998  
ITEM: LEFT AFT OXIDIZER XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 2 /2 ]	[    ]	[    ]	[    ]	[ X ]
COMPARE	[ N /N ]	[    ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /2 ]	[    ]	[    ]	[    ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURE OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-999  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 999  
ITEM: RIGHT AFT FUEL XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-999A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 999  
ITEM: RIGHT AFT FUEL XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1000  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1000  
ITEM: RIGHT AFT FUSELAGE LOW POINT OXIDIZER DRAIN LINE  
TEMP SENSOR

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1000A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1000  
ITEM: RIGHT AFT FUSELAGE LOW POINT OXIDIZER DRAIN LINE  
TEMP SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 / 3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1001  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1001  
ITEM: RIGHT - AFT FUSELAGE OXIDIZER XFEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 / 2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ]	[ ]	[ ]	[ ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURE OMS 11.5A NOTES 2,3,4.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1001A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1001  
ITEM: RIGHT - AFT FUSELAGE OXIDIZER XFEED LINE TEMP  
SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /2 ] [ ] [ ] [ ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURE OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1002  
NASA FMEA #: 03-3-7801-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1002  
ITEM: RIGHT AFT OXIDIZER XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 / 3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 / 2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N / N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 / 2 ] [ ] [ ] [ ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALFUNCTION PROCEDURE OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1002A  
NASA FMEA #: 03-3-2804-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1002  
ITEM: RIGHT AFT OXIDIZER XFEED LINE TEMP SENSOR

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ] *
IOA	[ 2 /2 ]	[ ]	[ ]	[ ]	[ X ]
COMPARE	[ N /N ]	[ ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /2 ] [ ] [ ] [ ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA ASSUMED NO LAUNCH IF A SENSOR INDICATES CROSSFEED TEMPS OUTSIDE THE DESIRED LIMITS (<50 F OR >90F) UNLESS SENSOR FAILURE WAS DETERMINED AND THE RISKS OF LOSS OF DETECTABILITY FOR THE THERMAL SYSTEM IS EXCEPTED (THIS ENSURES CROSSFEED FOR ABORTS). WORST CASE EFFECT WOULD BE A FALSE INDICATION OF HEATER SYSTEM FAILED OFF ON A MISSION CRITICAL CROSSFEED LINE, LEADING TO DELAYED LAUNCH AND/OR POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY. THIS IMPLIES A CRIT 2/2 SINCE NO REDUNDANCY.  
SEE FLIGHT RULES 6-9A (VS) 6-73D AND MALF. PROC. OMS 11.5A NOTES 2,3,4.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1003  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1003  
ITEM: FUEL & OXIDIZER FLEX LINE OVER TEMP (LT DECK)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1004  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1004  
ITEM: FUEL & OXIDIZER FLEX LINE OVER TEMP (LT DECK)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[ ]
INADEQUATE	[ ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1005  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1005  
ITEM: FUEL & OXIDIZER FLEX LINE OVER TEMP (RT DECK)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1006  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1006  
ITEM: FUEL & OXIDIZER FLEX LINE OVER TEMP (RT DECK)

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1007  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1007  
ITEM: FUEL & OXIDIZER LOWER CENTER FEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1008  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1008  
ITEM: FUEL & OXIDIZER LOWER CENTER FEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1009  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1009  
ITEM: FUEL & OX LOWER CENTER XFEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1010  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1010  
ITEM: FUEL & OX LOWER CENTER XFEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1011  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1011  
ITEM: FUEL & OXIDIZER LOWER LEFT FEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1012  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1012  
ITEM: FUEL & OXIDIZER LOWER LEFT FEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1013  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1013  
ITEM: FUEL & OX LOWER LEFT XFEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1014  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1014  
ITEM: FUEL & OX LOWER LEFT XFEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1015  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1015  
ITEM: FUEL & OXIDIZER LOWER RIGHT FEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[ ]	[ ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1016  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1016  
ITEM: FUEL & OXIDIZER LOWER RIGHT FEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1017  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1017  
ITEM: FUEL & OX LOWER RIGHT XFEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1018  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1018  
ITEM: FUEL & OX LOWER RIGHT XFEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1019  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1019  
ITEM: FUEL FLEX LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1020  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1020  
ITEM: FUEL FLEX LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1021  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1021  
ITEM: FUEL HI PT BLEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1022  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1022  
ITEM: FUEL HI PT BLEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1023  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1023  
ITEM: FUEL HI PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.



ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1024  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
 BASELINE [     ]  
 NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1024  
ITEM: FUEL HI PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

**ASSESSMENT:**

CRITICALITY		REDUNDANCY SCREENS			CIL ITEM
FLIGHT HDW/FUNC		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]      [ F ]      [ F ]      [ P ]      [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS :

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1025  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1025  
ITEM: FUEL HI PT BLEED LINE T-4 UMB OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1026  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1026  
ITEM: FUEL HI PT BLEED LINE T-4 UMB OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1027  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1027  
ITEM: FUEL HI PT BLEED LINE T-4 UMB. CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1028  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1028  
ITEM: FUEL HI PT BLEED LINE T-4 UMB. CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1029  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1029  
ITEM: L FUEL & OXIDIZER LO PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1030  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1030  
ITEM: L FUEL & OXIDIZER LO PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

## RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

## \* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1031  
NASA FMEA #: 03-3-7002-1

NASA DATA:                       
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1031  
ITEM: L FUEL & OXIDIZER LO PT DRAIN LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]    [    ]    [    ]    [    ]    [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1032  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1032  
ITEM: L FUEL & OXIDIZER LO PT DRAIN LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1033  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1033  
ITEM: OXIDIZER FLEX LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1034  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1034  
ITEM: OXIDIZER FLEX LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1035  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1035  
ITEM: OXIDIZER HI PT BLEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1036  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1036  
ITEM: OXIDIZER HI PT BLEED LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1037  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1037  
ITEM: OXIDIZER HI PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1038  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1038  
ITEM: OXIDIZER HI PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1039  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1039  
ITEM: OXIDIZER HI PT BLEED LINE T-4 UMB OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1040  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1040  
ITEM: OXIDIZER HI PT BLEED LINE T-4 UMB OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[    /    ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]	[ F ]	[ F ]	[ P ]	[ A ]
				(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1041  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1041  
ITEM: OXIDIZER HI PT BLEED LINE T-4 UMB. CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1042  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1042  
ITEM: OXIDIZER HI PT BLEED LINE T-4 UMB. CONTROL TEMP

LEAD ANALYST: W.A. HAUFLER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1043  
NASA FMEA #: 03-3-7002-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1043  
ITEM: R FUEL & OXIDIZER LO PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY	REDUNDANCY SCREENS			CIL
	FLIGHT HDW/FUNC	A	B	C	ITEM
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1044  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1044  
ITEM: R FUEL & OXIDIZER LO PT BLEED LINE OVER TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ F ]	[ P ]	[ P ]	[ X ]
COMPARE	[ / ]	[ N ]	[    ]	[    ]	[ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]    [ F ]    [ F ]    [ P ]    [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

NASA GROUPED POD AND CROSSFEED HEATERS IN ONE FMEA, BUT THEIR CRITS AND EFFECTS ARE QUITE DIFFERENT, SO THEY SHOULD BE ON SEPARATE FMEAS. THIS FMEA COVERS BOTH 'CONTROL TEMP' AND 'OVER TEMP' THERMAL SWITCHES. OVER TEMP IS STANDBY REDUNDANT TO CONTROL TEMP. SINCE THERE ARE NO TEST POINTS BETWEEN THEM, AND NO WAY TO ARTIFICIALLY FAIL A CONTROL TEMP THERMAL SWITCH, THERE IS NO WAY TO TEST ON THE GROUND FOR AN OVER TEMP THERMAL SWITCH FAILING CLOSED. THEREFORE, IOA RECOMMENDS FAILING THE A SCREEN.

# **APPENDIX C ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1045  
NASA FMEA #: 03-3-7002-1

NASA DATA:   
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1045  
ITEM: R FUEL & OXIDIZER LO PT DRAIN LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## **ASSESSMENT:**

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /3 ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## **REMARKS:**

IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1046  
NASA FMEA #: 03-3-7002-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1046  
ITEM: R FUEL & OXIDIZER LO PT DRAIN LINE CONTROL TEMP

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ]
COMPARE	[ / ]	[ ]	[ ]	[ ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
NO DIFFERENCES.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1047  
NASA FMEA #: 05-6L-2036-1

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1047  
ITEM: SWITCH TOGGLE, OMS XFEED LINES A AUTO (S7)

LEAD ANALYST: W.A. HAUFLEER

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[    ]	[    ]	[    ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /N ]	[ N ]	[ N ]	[ N ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ]      [ P ]      [ P ]      [ P ]      [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

## REMARKS:

IOA RECOMMENDS CRITICALITY OF 3/2R SINCE THE LOSS OF ALL  
REDUNDANCY (OTHER SWITCH FAILS) IS A POSSIBLE LOSS OF MISSION DUE  
TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY.



# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88	NASA DATA:
ASSESSMENT ID: OMS-1048	BASELINE [    ]
NASA FMEA #: 05-6L-2036-2	NEW [ X ]
SUBSYSTEM: OMS	
MDAC ID: 1048	
ITEM: SWITCH TOGGLE, OMS XFEED LINES A AUTO (S7)	
LEAD ANALYST: W.A. HAUFLER	

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ]	[    ]	[    ]	[    ]	[    ]	[    ]	(ADD/DELETE)
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\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[    ]
INADEQUATE	[    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1049  
NASA FMEA #: 05-6L-2036-1

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1049  
ITEM: SWITCH TOGGLE, OMS XFEED LINES B AUTO (S8)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /3 ]	[ ]	[ ]	[ ]	*
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	
COMPARE	[ /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /2R ] [ P ] [ P ] [ P ] [ ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS CRITICALITY OF 3/2R SINCE THE LOSS OF ALL REDUNDANCY (OTHER SWITCH FAILS) IS A POSSIBLE LOSS OF MISSION DUE TO LOSS OF INTERCONNECT/CROSSFEED CAPABILITY.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-1050  
NASA FMEA #: 05-6L-2036-2

NASA DATA:  
BASELINE [    ]  
NEW [ X ]

SUBSYSTEM: OMS  
MDAC ID: 1050  
ITEM: SWITCH TOGGLE, OMS XFEED LINES B AUTO (S8)

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ] *
IOA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[    ]
COMPARE	[    /    ]	[    ]	[    ]	[    ]	[    ]

RECOMMENDATIONS: (If different from NASA)

[    /    ] [    ] [    ] [    ] [    ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [    ]  
INADEQUATE [    ]

REMARKS:  
IOA AGREES WITH THIS NASA FMEA.

# APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/01/88  
ASSESSMENT ID: OMS-21001X  
NASA FMEA #: 03-3-8001-1

NASA DATA:  
BASELINE [ ]  
NEW [ ]

SUBSYSTEM: OMS  
MDAC ID: 21001  
ITEM: DEDICATED SIGNAL CONDITIONER

LEAD ANALYST: W.A. HAUFLE

## ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[ 3 /2R ]	[ P ]	[ P ]	[ P ]	[ ] *
IOA	[ / ]	[ ]	[ ]	[ ]	[ ]
COMPARE	[ N /N ]	[ N ]	[ N ]	[ N ]	[ ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /2 ] [ ] [ ] [ ] [ A ]  
(ADD/DELETE)

\* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

## REMARKS:

IOA RECOMMENDS UPGRADING THIS FMEA TO 2/2, 1/1 ABORT, THUS ADDING THIS TO THE CIL LIST. IOA'S CRIT IS BASED ON THE HIGHEST CRITICALITY OF THE SIGNALS ROUTED THROUGH THE SIGNAL CONDITIONERS. THESE WORST CASE SIGNALS ARE FROM OMS ENGINE TEMPERATURE AND PRESSURE SENSORS (E.G. ENGINE REGULATOR OUTLET PRESSURE SENSOR; OMS-689 OR SECTION 4.2.3.B.6). LOSS OF A VITAL ENGINE MEASUREMENT WILL PREVENT THE CREW FROM USING THAT OMS ENGINE FOR NONCRITICAL BURNS, RESULTING IN LOSS OF MISSION. THE IOA'S 1/1 ABORT CRIT IS A WEAK OR TENTATIVE RECOMMENDATION.

**APPENDIX D**

**CRITICAL ITEMS**

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS HARDWARE

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-1001-1	OMS-100	TANK, HELIUM STORAGE	RUPTURE
	OMS-101	TANK, HELIUM STORAGE	EXTERNAL LEAKAGE
03-3-1002-1	OMS-102	COUPLING, HELIUM FILL	EXTERNAL LEAKAGE
03-3-1003-1	OMS-108	VALVE, HELIUM ISOLATION	FAILS TO CLOSE, FAILS TO REMAIN CLOSED
	OMS-109	VALVE, HELIUM ISOLATION	INTERNAL LEAKAGE
03-3-1003-2	OMS-107	VALVE, HELIUM ISOLATION	FAILS TO OPEN, FAILS TO REMAIN OPEN
	OMS-111	VALVE, HELIUM ISOLATION	RESTRICTED FLOW
03-3-1004-1	OMS-118	REGULATOR ASSY, HELIUM PRESSURE	FAILS TO REGULATE
03-3-1004-2	OMS-119	REGULATOR ASSEMBLY, HELIUM PRESSURE	FAILS TO OPEN
	OMS-120	REGULATOR ASSEMBLY, HELIUM PRESSURE	OUT OF TOLERANCE, REGULATES AT LOW PRESSURE
	OMS-121	REGULATOR ASSEMBLY, HELIUM PRESSURE	RESTRICTED FLOW
03-3-1004-3	OMS-20013X	HELIUM PRESSURE REGULATOR ASSEMBLY	EXTERNAL LEAKAGE VIA BELLOWS & SENSING PORT
03-3-1006-1	OMS-127	VALVE, VAPOR ISOLATION-OXIDIZER	FAILS TO CLOSE, FAILS TO REMAIN CLOSED
	OMS-128	VALVE, VAPOR ISOLATION-OXIDIZER	INTERNAL LEAKAGE, REVERSE FLOW
03-3-1006-2	OMS-126	VALVE, VAPOR ISOLATION-OXIDIZER	FAILS TO OPEN, FAILS TO REMAIN OPEN
	OMS-130	VALVE, VAPOR ISOLATION-OXIDIZER	RESTRICTED FLOW
03-3-1007-1	OMS-133	VALVE, QUAD CHECK VALVES, FUEL	FAILS TO CLOSE, INTERNAL LEAKAGE, BACK FLOW
	OMS-134	VALVE, QUAD CHECK VALVES, OXIDIZER	FAILS TO CLOSE, INTERNAL LEAKAGE, BACK FLOW
03-3-1007-2	OMS-132	VALVE, QUAD CHECK VALVES	FAILS TO OPEN
03-3-1007-3	OMS-136	VALVE, QUAD CHECK VALVES	RESTRICTED FLOW
03-3-1009-1	OMS-145	VALVE-PRESSURE RELIEF ASSEMBLY	EXTERNAL LEAKAGE
03-3-1009-2	OMS-141	VALVE-PRESSURE RELIEF ASSEMBLY	OUT OF TOLERANCE, RELIEF VALVE FAILS CLOSED
03-3-1009-3	OMS-142	VALVE-PRESSURE RELIEF ASSEMBLY	OUT OF TOLERANCE, BURST DISK RUPTURES
	OMS-143	VALVE-PRESSURE RELIEF ASSEMBLY	BURST DISK LEAK, INTERNAL LEAKAGE
03-3-1009-4	OMS-141A	VALVE-PRESSURE RELIEF ASSEMBLY	OUT OF TOLERANCE, RELIEF VALVE FAILS CLOSED
03-3-1009-5	OMS-144	VALVE-PRESSURE RELIEF ASSEMBLY	FAILS TO CLOSE, VALVE FAILS TO RESEAT
03-3-1101-1	OMS-105	LINES AND MECHANICAL FITTINGS-HELIUM PRESSURE	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-110	VALVE, HELIUM ISOLATION	EXTERNAL LEAKAGE
	OMS-116	LINES AND MECHANICAL FITTINGS-HELIUM PRESSURE	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-122	REGULATOR ASSEMBLY, HELIUM PRESSURE	EXTERNAL LEAKAGE
	OMS-129	VALVE, VAPOR ISOLATION-OXIDIZER	EXTERNAL LEAKAGE
	OMS-135	VALVE, QUAD CHECK VALVES	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-145A	VALVE-PRESSURE RELIEF ASSEMBLY	EXTERNAL LEAKAGE
	OMS-155	VALVE-GROUND, MANUAL ISOLATION	EXTERNAL LEAKAGE
03-3-1205-1	OMS-113	COUPLING-TEST PORT, HIGH PRESSURE HELIUM	EXTERNAL LEAKAGE
	OMS-123	COUPLING-TEST PORT, VAPOR ISOLATION CHECKOUT	EXTERNAL LEAKAGE
	OMS-137	COUPLING-TEST PORT, QUAD CHECK VALVE	EXTERNAL LEAKAGE
	OMS-146	COUPLING-TEST PORT, PRESSURE RELIEF VALVE	EXTERNAL LEAKAGE
03-3-2001-1	OMS-150	COUPLING-TEST PORT, PROPELLANT PRESSURE CHECK	EXTERNAL LEAKAGE
	OMS-156	COUPLING-TANK VENT	EXTERNAL LEAKAGE
	OMS-168	COUPLING-TANK ACQ. SYSTEM TRAP FILL/VENT PORT	EXTERNAL LEAKAGE
	OMS-171	COUPLING-TANK ACQ. SYSTEM FILL/VENT PORT	EXTERNAL LEAKAGE
	OMS-174	COUPLING-PROPELLANT, TANK TEST PORT	EXTERNAL LEAKAGE
	OMS-231	COUPLING - HIGH-POINT BLEED	EXTERNAL LEAKAGE
03-3-20010-1	OMS-216	CROSSFEED GIMBAL JOINT	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS HARDWARE

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-20011-1	OMS-219	FLEXIBLE LINE ASSEMBLY	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK RUPTURE
03-3-2002-1	OMS-163	PROPELLANT TANK	STRUCTURAL FAILURE, EXTERNAL LEAKAGE
03-3-2002-2	OMS-164	PROPELLANT TANK	STRUCTURAL FAILURE, HELIUM PASSAGE
03-3-2004-1	OMS-193	COLLECTOR MANIFOLD	STRUCTURAL FAILURE, HELIUM PASSAGE
03-3-2005-1	OMS-192	GALLERY LEGS	STRUCTURAL FAILURE, LOSS OF RETENTION
03-3-2006-3	OMS-190	COMMUNICATION SCREEN	STRUCTURAL FAILURE, HELIUM PASSAGE
	OMS-191	COMMUNICATION SCREEN	FAILS TO OPEN, FAILS TO REMAIN OPEN
03-3-2007-2	OMS-198	VALVE-PROPELLANT TANK ISOLATION	RESTRICTED FLOW
	OMS-203	VALVE-PROPELLANT TANK ISOLATION	EXTERNAL LEAKAGE
03-3-2007-3	OMS-202A	AC VALVE	RESTRICTED FLOW
03-3-2008-2	OMS-228	VALVE-CROSSFEED	EXTERNAL LEAKAGE
03-3-2008-3	OMS-227A	AC VALVE	EXTERNAL LEAKAGE
03-3-2009-1	OMS-165	COUPLING-PROP TANK, HORIZONTAL DRAIN PORT	EXTERNAL LEAKAGE
	OMS-207	COUPLING - PROPELLANT LOW-POINT DRAIN	EXTERNAL LEAKAGE
	OMS-210	COUPLING-OMS/RCS PROPELLANT FILL PORT	EXTERNAL LEAKAGE
	OMS-213	COUPLING - PROPELLANT GROUND-PURGE	EXTERNAL LEAKAGE
	OMS-234	COUPLING-CROSSFEED DRAIN	EXTERNAL LEAKAGE
03-3-2101-1	OMS-194	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-202	VALVE-PROPELLANT TANK ISOLATION	EXTERNAL LEAKAGE
	OMS-227	VALVE-CROSSFEED	EXTERNAL LEAKAGE
	OMS-260	VALVE - BI-PROPELLANT VALVE	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
03-3-2102-1	OMS-194A	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
03-3-2601-1	OMS-160	GIMBAL BELLOWS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-195	GIMBAL BELLOWS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-239	GIMBAL BELLOWS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-242	GIMBAL BELLOWS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
03-3-2602-1	OMS-245	ALIGNMENT BELLOWS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
03-3-4001-1	OMS-257	VALVE - BI-PROPELLANT VALVE	FAILS TO CLOSE, FAILS TO REMAIN CLOSED
	OMS-327	VALVE-ENGINE CONTROL	FAILS TO CLOSE, FAILS TO REMAIN CLOSED
	OMS-338	PNEUMATIC ACTUATOR	FAILS TO CLOSE, PHYSICAL BINDING/JAMMING
	OMS-348A	PINION GEAR AND DRIVE ASSEMBLY	FAILS TO OPERATE, PHYSICAL BINDING/JAMMING
03-3-4001-2	OMS-256	VALVE - BI-PROPELLANT VALVE	FAILS TO OPEN, RESTRICTED FLOW
	OMS-326	VALVE-ENGINE CONTROL	FAILS TO OPEN, FAILS TO REMAIN OPEN
	OMS-337	PNEUMATIC ACTUATOR	FAILS TO OPEN OR OPERATE, BINDING/JAMMING
	OMS-340	PNEUMATIC ACTUATOR	INTERNAL LEAKAGE, PISTON SEAL LEAKAGE
	OMS-348	PINION GEAR AND DRIVE ASSEMBLY	FAILS TO OPERATE, PHYSICAL BINDING/JAMMING
	OMS-349	PINION GEAR AND DRIVE ASSEMBLY	STRUCTURAL FAILURE, FRACTURE
03-3-4001-3	OMS-20003X	PINION GEAR AND DRIVE ASSEMBLY	DELAYED OPERATION
	OMS-20006X	PINION GEAR & DRIVE ASSEMBLY	FAILS MIDTRAVEL, PARTIALLY OPEN/CLOSED
	OMS-258	VALVE - BI-PROPELLANT VALVE	FAILS MIDTRAVEL, PARTIALLY OPEN/CLOSED
	OMS-261	VALVE - BI-PROPELLANT VALVE	DELAYED OPERATION
	OMS-331	VALVE-ENGINE CONTROL	DELAYED OPERATION
	OMS-339	PNEUMATIC ACTUATOR	FAILS MIDTRAVEL, PHYSICAL BINDING/JAMMING
	OMS-344	PNEUMATIC ACTUATOR	DELAYED OPERATION
03-3-4001-4	OMS-328	VALVE-ENGINE CONTROL	INTERNAL LEAKAGE

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS HARDWARE

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-4001-5	OMS-341	PNEUMATIC ACTUATOR	RUPTURE
	OMS-343	PNEUMATIC ACTUATOR	EXTERNAL LEAKAGE (GN2)
03-3-4001-6	OMS-259	VALVE - BIPOPELLANT VALVE	INTERNAL LEAKAGE
03-3-4002-1	OMS-249	ENGINE INLET FILTER AND ORIFICE	RESTRICTED FLOW, CLOGGED
03-3-4002-2	OMS-248	ENGINE INLET FILTER AND ORIFICE	STRUCTURAL FAILURE, CONTAMINATION PASSAGE
03-3-4003-1	OMS-270	OME ALIGNMENT BELLOWS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
03-3-4004-1	OMS-280	PLATELET INJECTOR ASSEMBLY	STRUCTURAL FAILURE, BURN THROUGH
	OMS-281	PLATELET INJECTOR ASSEMBLY	STRUCTURAL FAILURE, INTERNAL LEAKAGE
03-3-4004-2	OMS-282	PLATELET INJECTOR ASSEMBLY	RESTRICTED FLOW, CLOGGED
03-3-4005-1	OMS-285A	NOZZLE EXTENSION	STRUCTURAL FAILURE (BURN THROUGH, FRACTURE)
03-3-4005-2	OMS-283	COMBUSTION CHAMBER	STRUCTURAL FAILURE, BURN THROUGH
	OMS-284	COMBUSTION CHAMBER	STRUCTURAL FAILURE, FRACTURE
03-3-4006-1	OMS-285	NOZZLE EXTENSION	STRUCTURAL FAILURE (BURN THROUGH, FRACTURE)
	OMS-286	NOZZLE EXTENSION	STRUCTURAL FAILURE, BUCKLING(DURING ASCENT)
03-3-4501-1	OMS-295	TANK-GN2 STORAGE	RUPTURE
03-3-45011-1	OMS-317	VALVE-GN2 PRESSURE RELIEF	INTERNAL/EXTERNAL LEAKAGE
	OMS-318	VALVE-GN2 PRESSURE RELIEF	OUT OF TOLERANCE, OPENS AT LOW PRESSURE
03-3-45011-3	OMS-20012X	GN2 PRESSURE REGULATOR AND PRESSURE RELIEF VALVE	REG FAIL OPEN AND RELIEF VALVE FAIL CLOSED
03-3-4502-1	OMS-287	COUPLING-GN2 TANK FILL/VENT	EXTERNAL LEAKAGE
03-3-4503-2	OMS-299	VALVE-GN2 PRESSURE ISOLATION	FAILS TO OPEN, FAILS TO REMAIN OPEN
	OMS-303	VALVE-GN2 PRESSURE ISOLATION	RESTRICTED FLOW
03-3-4505-2	OMS-305	GN2 PRESSURE REGULATOR	FAILS TO OPEN
	OMS-308	GN2 PRESSURE REGULATOR	OUT OF TOLERANCE, REGULATES AT LOW PRESSURE
	OMS-309	GN2 PRESSURE REGULATOR	RESTRICTED FLOW
03-3-4506-1	OMS-312	COUPLING, GN2 REGULATOR TEST PORT	EXTERNAL LEAKAGE
03-3-4507-1	OMS-253	COUPLING - HIGH-POINT BLEED TEST PORT	EXTERNAL LEAKAGE
	OMS-267	COUPLING - BIPROP VALVE DRAIN/PURGE TEST PORT	EXTERNAL LEAKAGE
	OMS-273	COUPLING - BIPROP VALVE DRAIN PORT	EXTERNAL LEAKAGE
	OMS-277	COUPLING-OMS ENGINE TRICKLE PURGE PORT	EXTERNAL LEAKAGE
03-3-4508-1	OMS-353	VALVE-GN2 PURGE	INTERNAL LEAKAGE
	OMS-358	CHECK VALVE-GN2 PURGE	FAILS TO CLOSE
	OMS-359	CHECK VALVE-GN2 PURGE	INTERNAL LEAKAGE
03-3-4510-1	OMS-290	GN2 PRESSURE LINES AND MECHANICAL FITTINGS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-324	GN2 PRESSURE LINES AND MECHANICAL FITTINGS	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
	OMS-329	VALVE-ENGINE CONTROL	EXTERNAL LEAKAGE
03-3-4551-1	OMS-320	CHECK VALVE-GN2	FAILS TO CLOSE, VALVE FAILS TO RESEAT
	OMS-321	CHECK VALVE-GN2	INTERNAL LEAKAGE
03-3-4551-2	OMS-319	CHECK VALVE-GN2	FAILS TO OPEN
03-3-4552-1	OMS-322	GN2 ACCUMULATOR	RUPTURE
	OMS-323	GN2 ACCUMULATOR	STRUCTURAL FAILURE, EXTERNAL LEAKAGE
03-3-4601-1	OMS-250	BELLOWS-TVC GIMBAL	STRUCTURAL FAILURE, RUPTURE, EXTERNAL LEAK
03-3-64011-1	OMS-364	GIMBAL RING MOUNTING PAD	STRUCTURAL FAILURE, FRACTURE
03-3-6402-1	OMS-20010X	ENGINE/ACTUATOR AND ACTUATOR/VEHICLE ATTACH HARDWARE	STRUCTURAL FAILURE, DISATTACHMENT
	OMS-368	ACME SCREW/NUT TUBE	STRUCTURAL FAILURE, FRACTURE
	OMS-377	BEARING-SPHERICAL ROD END	STRUCTURAL FAILURE, FRACTURE
	OMS-381	OUTPUT SHAFT	STRUCTURAL FAILURE, FRACTURE, DISATTACHMENT



APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS HARDWARE

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-6402-2	OMS-20009X	DRIVE GEARS, PRIMARY AND SECONDARY	STRUCTURAL FAILURE
	OMS-20011X	BEARING - ACTUATOR/VEHICLE ATTACHMENT	PHYSICAL BINDING/JAMMING
03-3-6402-2	OMS-367	ACME SCREW/NUT TUBE	FAILS TO OPERATE, PHYSICAL BINDING/JAMMING
	OMS-376	BEARING-SPHERICAL ROD END	PHYSICAL BINDING/JAMMING
03-3-6406-1	OMS-378	MECHANICAL STOP-SNUBBER	STRUCTURAL FAILURE, FAILS OUT OF TOLERANCE
03-3-6408-1	OMS-362	GIMBAL RING	STRUCTURAL FAILURE
03-3-6409-1	OMS-363	BEARING-GIMBAL RING	FAILS TO FUNCTION, BINDING/JAMMING
NONE	OMS-106	LINES AND MECHANICAL FITTINGS-HELIUM PRESSURE	RESTRICTED FLOW, BLOCKAGE
	OMS-117	LINES AND MECHANICAL FITTINGS-HELIUM PRESSURE	RESTRICTED FLOW, BLOCKAGE
	OMS-149	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	RESTRICTED FLOW, BLOCKAGE
	OMS-153	VALVE-GROUND, MANUAL ISOLATION	FAILS TO REMAIN OPEN
	OMS-159	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	RESTRICTED FLOW, BLOCKAGE
	OMS-161	GIMBAL BELLWS	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-162	GIMBAL BELLWS	RESTRICTED FLOW
	OMS-196	GIMBAL BELLWS	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-197	GIMBAL BELLWS	RESTRICTED FLOW
	OMS-200	VALVE-PROPELLANT TANK ISOLATION	FAILS MIDTRAVEL, PARTIALLY OPEN/CLOSED
	OMS-20002X	GIMBAL RING BEARING, MOUNTING PAD ATTACHMENT	STRUCTURAL FAILURE, DISATTACHMENT
	OMS-20005X	VALVE - BIPROP CAVITY PRESSURE RELIEF	RESTRICTED FLOW
	OMS-20008X	BEARING - SECONDARY DRIVE GEAR	STRUCTURAL FAILURE
	OMS-205	VALVE-PROPELLANT TANK ISOLATION	OUT OF TOLERANCE, RELIEF VALVE FAILS CLOSED
	OMS-206	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	RESTRICTED FLOW, BLOCKAGE
	OMS-217	CROSSFEED GIMBAL JOINT	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-218	CROSSFEED GIMBAL JOINT	RESTRICTED FLOW
	OMS-220	FLEXIBLE LINE ASSEMBLY	RESTRICTED FLOW
	OMS-221	CROSSFEED PROPELLANT LINES AND MECHANICAL FITTINGS	RESTRICTED FLOW, BLOCKAGE
	OMS-222	CROSSFEED PROPELLANT LINES AND MECHANICAL FITTINGS	RESTRICTED FLOW, BLOCKAGE
	OMS-230	VALVE-CROSSFEED	OUT OF TOLERANCE, RELIEF VALVE FAILS CLOSED
	OMS-238	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	RESTRICTED FLOW, BLOCKAGE
	OMS-240	GIMBAL BELLWS	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-241	GIMBAL BELLWS	RESTRICTED FLOW
	OMS-243	GIMBAL BELLWS	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-244	GIMBAL BELLWS	RESTRICTED FLOW
	OMS-246	ALIGNMENT BELLWS	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-247	ALIGNMENT BELLWS	RESTRICTED FLOW
	OMS-251	BELLWS-TVC GIMBAL	OUT OF TOLERANCE, PHYSICAL BINDING/JAMMING
	OMS-252	BELLWS-TVC GIMBAL	RESTRICTED FLOW
	OMS-262	VALVE - BIPROP CAVITY PRESSURE RELIEF	FAILS TO OPEN, AT SPECIFIED PSID
	OMS-263	VALVE - BIPROP CAVITY PRESSURE RELIEF	FAILS TO CLOSE, VALVE FAILS TO RESEAT
	OMS-265	VALVE - BIPROP CAVITY PRESSURE RELIEF	STRUCTURAL FAILURE, EXTERNAL LEAKAGE
	OMS-272	OME ALIGNMENT BELLWS	RESTRICTED FLOW
	OMS-276	PROPELLANT LINES AND MECHANICAL FITTINGS-MMH AND NTO	RESTRICTED FLOW, BLOCKAGE
	OMS-298	PNEUMATIC PACK HOUSING ASSEMBLY	RESTRICTED FLOW, BLOCKAGE
	OMS-325	GN2 PRESSURE LINES AND MECHANICAL FITTINGS	RESTRICTED FLOW, BLOCKAGE
	OMS-330	VALVE-ENGINE CONTROL	RESTRICTED FLOW
	OMS-332	ORIFICE-ENGINE CONTROL VALVE INLET	RESTRICTED FLOW

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS HARDWARE

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
	OMS-333	ORIFICE-ENGINE CONTROL VALVE VENT	RESTRICTED FLOW, INABILITY TO VENT GN2
	OMS-334	CHECK VALVE-ENGINE CONTROL VALVE VENT	FAILS TO OPEN
	OMS-335	CHECK VALVE-ENGINE CONTROL VALVE VENT	FAILS TO CLOSE
	OMS-336	CHECK VALVE-ENGINE CONTROL VALVE VENT	INTERNAL LEAKAGE
	OMS-342	PNEUMATIC ACTUATOR	INTERNAL/EXTERNAL LEAKAGE (PROPELLANT)
	OMS-373	ANTIBACK DEVICE	STRUCTURAL FAILURE, FRACTURE
	OMS-374	BEARING-GIMBAL THRUST DRIVE	STRUCTURAL FAILURE, FRACTURE

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS EPD&C

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-2803-1	OMS-610	SENSOR TEMPERATURE, FUEL TANK LOWER	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-611	SENSOR TEMPERATURE, OX LOWER TANK	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
03-3-2804-1	OMS-994A	CENTER - AFT FUSLG OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-997A	LEFT - AFT FUSLG OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-998A	LEFT AFT OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-1001A	RIGHT - AFT FUSLG OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-1002A	RIGHT AFT OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-698	SENSOR TEMPERATURE ENGINE FUEL FEED LINE	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
03-3-4802-1	OMS-782	HEATER, LT/RT ENG SERV PNL GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
03-3-7001-1	OMS-783	HEATER, LT/RT ENG SERV PNL GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-784	HEATER, LT/RT ENG SERV PNL GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-785	HEATER, LT/RT ENG SERV PNL GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-786	HEATER, LT/RT GSE SERVICE PNL GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-787	HEATER, LT/RT GSE SERVICE PNL GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-788	HEATER, LT/RT GSE SERVICE PNL GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-789	HEATER, LT/RT GSE SERVICE PNL GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-790	HEATER, LT/RT LOWER INBD Y WEB GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-791	HEATER, LT/RT LOWER INBD Y WEB GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-792	HEATER, LT/RT LOWER INBD Y WEB GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-793	HEATER, LT/RT LOWER INBD Y WEB GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-794	HEATER, LT/RT OME COMPT GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-795	HEATER, LT/RT OME COMPT GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-797	HEATER, LT/RT OME COMPT GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-806	HEATER, LT/RT OMS KEEL WEB GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-807	HEATER, LT/RT OMS KEEL WEB GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-808	HEATER, LT/RT OMS KEEL WEB GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-809	HEATER, LT/RT OMS KEEL WEB GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-815	HEATER, LT/RT OX PRESS PNL GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-817	HEATER, LT/RT OX PRESS PNL GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-818	HEATER, LT/RT RCS HOUSING DRAIN PNL GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-819	HEATER, LT/RT RCS HOUSING DRAIN PNL GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-820	HEATER, LT/RT RCS HOUSING DRAIN PNL GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-821	HEATER, LT/RT RCS HOUSING DRAIN PNL GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-822	HEATER, LT/RT RCS HOUSING PITCH DN GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-823	HEATER, LT/RT RCS HOUSING PITCH DN GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-824	HEATER, LT/RT RCS HOUSING PITCH DN GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-825	HEATER, LT/RT RCS HOUSING PITCH DN GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-826	HEATER, LT/RT RCS HOUSING PITCH UP GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-827	HEATER, LT/RT RCS HOUSING PITCH UP GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-828	HEATER, LT/RT RCS HOUSING PITCH UP GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-829	HEATER, LT/RT RCS HOUSING PITCH UP GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-830	HEATER, LT/RT RCS HOUSING VERNIER GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-831	HEATER, LT/RT RCS HOUSING VERNIER GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-832	HEATER, LT/RT RCS HOUSING VERNIER GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-833	HEATER, LT/RT RCS HOUSING VERNIER GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-834	HEATER, LT/RT RCS HOUSING YAW GROUP 1	FAILS OPEN, FAILS TO PROVIDE HEAT

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS EPD&C

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-7001-1	OMS-835	HEATER, LT/RT RCS HOUSING YAW GROUP 1	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
	OMS-836	HEATER, LT/RT RCS HOUSING YAW GROUP 2	FAILS OPEN, FAILS TO PROVIDE HEAT
	OMS-837	HEATER, LT/RT RCS HOUSING YAW GROUP 2	FAILS SHORT, SHORTS TO MOUNTING, SO OPENS
03-3-7002-1	OMS-1003	FUEL & OXIDIZER FLEX LINE OVER TEMP (LT DECK)	FAILS OPEN
	OMS-1005	FUEL & OXIDIZER FLEX LINE OVER TEMP (RT DECK)	FAILS OPEN
	OMS-1007	FUEL & OXIDIZER LOWER CENTER FEED LINE OVER TEMP	FAILS OPEN
	OMS-1011	FUEL & OXIDIZER LOWER LEFT FEED LINE OVER TEMP	FAILS OPEN
	OMS-1015	FUEL & OXIDIZER LOWER RIGHT FEED LINE OVER TEMP	FAILS OPEN
03-3-7002-2	OMS-895	THERMAL SWITCH, LT/RT GSE SERVICE PNL GROUP 1	FAILS SHORT
	OMS-897	THERMAL SWITCH, LT/RT GSE SERVICE PNL GROUP 2	FAILS SHORT
	OMS-899	THERMAL SWITCH, LT/RT KEEL WEB HEATER SYSTEM GROUP 1	FAILS SHORT
	OMS-901	THERMAL SWITCH, LT/RT KEEL WEB HEATER SYSTEM GROUP 2	FAILS SHORT
	OMS-903	THERMAL SWITCH, LT/RT LOWER INBOARD Y WEB GROUP 1	FAILS SHORT
	OMS-905	THERMAL SWITCH, LT/RT LOWER INBOARD Y WEB GROUP 2	FAILS SHORT
	OMS-907	THERMAL SWITCH, LT/RT OME COMPT GROUP 1	FAILS SHORT
	OMS-909	THERMAL SWITCH, LT/RT OME COMPT GROUP 2	FAILS SHORT
	OMS-911	THERMAL SWITCH, LT/RT OME COVER GROUP 1	FAILS SHORT
	OMS-913	THERMAL SWITCH, LT/RT OME COVER GROUP 2	FAILS SHORT
	OMS-915	THERMAL SWITCH, LT/RT RCS HOUSING GROUP 1	FAILS SHORT
	OMS-917	THERMAL SWITCH, LT/RT RCS HOUSING GROUP 2	FAILS SHORT
	OMS-919	THERMAL SWITCH, LT/RT UPPER INBOARD Y-WEB GROUP 1	FAILS SHORT
	OMS-921	THERMAL SWITCH, LT/RT UPPER INBOARD Y-WEB GROUP 2	FAILS SHORT
	OMS-923	THERMAL SWITCH, LT/RT UPPER OUTBOARD Y WEB GROUP 1	FAILS SHORT
	OMS-925	THERMAL SWITCH, LT/RT UPPER OUTBOARD Y WEB GROUP 2	FAILS SHORT
	OMS-1004	FUEL & OXIDIZER FLEX LINE OVER TEMP (LT DECK)	FAILS SHORT
	OMS-1006	FUEL & OXIDIZER FLEX LINE OVER TEMP (RT DECK)	FAILS SHORT
	OMS-1008	FUEL & OXIDIZER LOWER CENTER FEED LINE OVER TEMP	FAILS SHORT
	OMS-1010	FUEL & OX LOWER CENTER XFEED LINE CONTROL TEMP	FAILS SHORT
	OMS-1012	FUEL & OXIDIZER LOWER LEFT FEED LINE OVER TEMP	FAILS SHORT
	OMS-1016	FUEL & OXIDIZER LOWER RIGHT FEED LINE OVER TEMP	FAILS SHORT
	OMS-1024	FUEL HI PT BLEED LINE OVER TEMP	FAILS SHORT
	OMS-1026	FUEL HI PT BLEED LINE T-4 UMB OVER TEMP	FAILS SHORT
	OMS-1030	L FUEL & OXIDIZER LO PT BLEED LINE OVER TEMP	FAILS SHORT
	OMS-1038	OXIDIZER HI PT BLEED LINE OVER TEMP	FAILS SHORT
	OMS-1040	OXIDIZER HI PT BLEED LINE T-4 UMB OVER TEMP	FAILS SHORT
	OMS-1044	R FUEL & OXIDIZER LO PT BLEED LINE OVER TEMP	FAILS SHORT
03-3-7011-1	OMS-952	FUEL & OX LOWER CENTER FEED LINE (XFEED) HEATER A/B	FAILS OPEN
	OMS-953	FUEL & OX LOWER CENTER FEED LINE (XFEED) HEATER A/B	FAILS SHORT
	OMS-954	FUEL & OX LOWER LEFT FEED LINE (XFEED) HEATER A/B	FAILS OPEN
	OMS-955	FUEL & OX LOWER LEFT FEED LINE (XFEED) HEATER A/B	FAILS SHORT
	OMS-956	FUEL & OX LOWER RIGHT FEED LINE (XFEED) HEATER A/B	FAILS OPEN
	OMS-957	FUEL & OX LOWER RIGHT FEED LINE (XFEED) HEATER A/B	FAILS SHORT
	OMS-964	LEFT FUEL AND OXIDIZER FLEX LINE HEATERS (A/B)	FAILS OPEN
	OMS-965	LEFT FUEL AND OXIDIZER FLEX LINE HEATERS (A/B)	FAILS SHORT
	OMS-972	RIGHT FUEL AND OXIDIZER FLEX LINE HEATERS (A/B)	FAILS OPEN
	OMS-973	RIGHT FUEL AND OXIDIZER FLEX LINE HEATERS (A/B)	FAILS SHORT

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS EPD&C

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
03-3-7801-1	OMS-994	CENTER - AFT FUSLG OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-997	LEFT - AFT FUSLG OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-998	LEFT AFT OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-1001	RIGHT - AFT FUSLG OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
	OMS-1002	RIGHT AFT OXIDIZER XFEED LINE TEMP SENSOR	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)
03-3-8001-1	OMS-21001X	DEDICATED SIGNAL CONDITIONER	FAILS OPEN, ONE CIRCUIT PATH
05-6L-2006-1	OMS-645	FUSE, 1A	FAILS OPEN
	OMS-647	FUSE, 1A	FAILS OPEN
05-6L-2007-1	OMS-644	FUSE, 1A	FAILS OPEN
	OMS-646	FUSE, 1A	FAILS OPEN
05-6L-2015-1	OMS-648	FUSE, 3A	FAILS OPEN
	OMS-649	FUSE, 3A	FAILS OPEN
	OMS-650	FUSE, 3A	FAILS OPEN
	OMS-651	FUSE, 3A	FAILS OPEN
05-6L-2026-1	OMS-440	SWITCH TOGGLE, LT/RT OMS HE PRESS VAPOR ISOL VLV A	FAILS TO SWITCH (STUCK IN GPC POSITION)
	OMS-443	SWITCH TOGGLE, LT/RT OMS HE PRESS VAPOR ISOL VLV B	FAILS TO SWITCH (STUCK IN GPC POSITION)
05-6L-2026-2	OMS-439	SWITCH TOGGLE, LT/RT OMS HE PRESS VAPOR ISOL VLV A	FAILS TO SWITCH (STUCK IN CLOSE POSITION)
	OMS-441	SWITCH TOGGLE, LT/RT OMS HE PRESS VAPOR ISOL VLV B	FAILS TO SWITCH (STUCK IN CLOSE POSITION)
05-6L-2027-2	OMS-594	SWITCH TOGGLE LT/RT	FAILS TO SWITCH (STUCK IN CLOSED POSITION)
	OMS-597	SWITCH TOGGLE LT/RT	FAILS TO SWITCH (STUCK IN CLOSED POSITION)
05-6L-2029-1	OMS-674	SWITCH, OMS LT/RT ENG ARM/PRESS (C3A1, S1/S2)	FAILS TO SWITCH (STUCK IN OFF POSITION)
05-6L-2029-2	OMS-672	SWITCH, OMS LT/RT ENG ARM/PRESS (C3A1, S1/S2)	FAILS TO SWITCH (STUCK IN ARM/PRESS POS.)
	OMS-673	SWITCH, OMS LT/RT ENG ARM/PRESS (C3A1, S1/S2)	FAILS TO SWITCH (STUCK IN ARM POSITION)
05-6L-2030-1	OMS-675	SWITCH, OMS LT/RT ENG CONTROL VLV	FAILS TO SWITCH (STUCK IN OFF POSITION)
05-6L-2030-2	OMS-676	SWITCH, OMS LT/RT ENG CONTROL VLV	FAILS TO SWITCH (STUCK IN ON POSITION)
05-6L-2031-2	OMS-926	SWITCH, TOGGLE RCS/OMS HEATER LT/RT POD GROUP1	FAILS TO SWITCH (STUCK IN ON POSITION)
	OMS-927	SWITCH, TOGGLE RCS/OMS HEATER LT/RT POD GROUP 2	FAILS TO SWITCH (STUCK IN ON POSITION)
05-6L-2078-1	OMS-530	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-537	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-576	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-584	RESISTOR, 5.1K 1/4W	FAILS OPEN
05-6L-2079-2	OMS-572	RESISTOR, 1.2K 2W	FAILS OPEN
	OMS-578	RESISTOR, 1.2K 1/4W	FAILS OPEN
05-6L-2079A-2	OMS-526	RESISTOR, 1.2K 2W	FAILS OPEN
	OMS-532	RESISTOR, 1.2K 2W	FAILS OPEN
	OMS-570	RESISTOR, 1.2K 2W	FAILS OPEN
	OMS-580	RESISTOR, 1.2K 2W	FAILS OPEN
05-6L-2082-1	OMS-518	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-524	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-562	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-568	RESISTOR, 5.1K 1/4W	FAILS OPEN
05-6L-2083-1	OMS-514	RESISTOR, 1.2K 1/4W	FAILS OPEN
	OMS-520	RESISTOR, 1.2K 1/4W	FAILS OPEN
	OMS-558	RESISTOR, 1.2K 1/4W	FAILS OPEN
	OMS-564	RESISTOR, 1.2K 1/4W	FAILS OPEN
05-6L-2083A-1	OMS-538	RESISTOR, 1.2K 1/4W	FAILS OPEN

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS EPD&C

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
05-6L-2083A-1	OMS-544	RESISTOR, 1.2K 1/4W	FAILS OPEN
05-6L-2086-1	OMS-662	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-664	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-667	RESISTOR, 5.1K 1/4W	FAILS OPEN
	OMS-670	RESISTOR, 5.1K 1/4W	FAILS OPEN
05-6L-2126-1	OMS-492	RELAY	FAILS OPEN (RELAY FAILS TO ENERGIZE)
	OMS-496	RELAY	FAILS OPEN (RELAY FAILS TO ENERGIZE)
	OMS-508	RELAY	FAILS OPEN (RELAY FAILS TO ENERGIZE)
	OMS-513	RELAY	FAILS OPEN (RELAY FAILS TO ENERGIZE)
05-6L-2130-1	OMS-482	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
	OMS-484	RELAY	FAILS OPEN
	OMS-486	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
	OMS-488	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
	OMS-498	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
	OMS-500	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
	OMS-502	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
	OMS-504	RELAY	FAILS OPEN (FAILS TO ENERGIZE)
05-6L-2134-2	OMS-846	RELAY	FAILS HIGH (ENERGIZED POSITION)
	OMS-848	RELAY	FAILS HIGH
	OMS-850	RELAY	FAILS HIGH (FAILS ENERGIZED)
	OMS-852	RELAY	FAILS HIGH
05-6L-2136-2	OMS-976	RELAY	FAILS HIGH
05-6L-2176-2	OMS-399	CONTROLLER, REMOTE POWER	FAILS HIGH
05-6L-2206-1	OMS-632	DRIVER, HYBRID	FAILS OPEN
	OMS-640	DRIVER, HYBRID	FAILS OPEN
05-6L-2206-2	OMS-633	DRIVER, HYBRID	FAILS HIGH
	OMS-641	DRIVER, HYBRID	FAILS HIGH
05-6L-2207-1	OMS-626	DRIVER, HYBRID	FAILS OPEN
	OMS-628	DRIVER, HYBRID	FAILS OPEN
	OMS-630	DRIVER, HYBRID	FAILS OPEN
	OMS-634	DRIVER, HYBRID	FAILS OPEN
	OMS-636	DRIVER, HYBRID	FAILS OPEN
	OMS-638	DRIVER, HYBRID	FAILS OPEN
05-6L-2207-2	OMS-631	DRIVER, HYBRID	FAILS HIGH
	OMS-639	DRIVER, HYBRID	FAILS HIGH
05-6L-2209-1	OMS-622	DRIVER, HYBRID	FAILS OPEN
	OMS-624	DRIVER, HYBRID	FAILS OPEN
05-6L-2210-2	OMS-706	DRIVER, HYBRID	FAILS HIGH
	OMS-708	DRIVER, HYBRID	FAILS HIGH
	OMS-710	DRIVER, HYBRID	FAILS HIGH
	OMS-712	DRIVER, HYBRID	FAILS HIGH
	OMS-714	DRIVER, HYBRID	FAILS HIGH
	OMS-715	DRIVER, HYBRID	FAILS HIGH
	OMS-718	DRIVER, HYBRID	FAILS HIGH
	OMS-720	DRIVER, HYBRID	FAILS HIGH
	OMS-722	DRIVER, HYBRID	FAILS HIGH

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS EPD&C

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
05-6L-2210-2	OMS-724	DRIVER, HYBRID	FAILS HIGH
	OMS-726	DRIVER, HYBRID	FAILS HIGH
	OMS-728	DRIVER, HYBRID	FAILS HIGH
	OMS-730	DRIVER, HYBRID	FAILS HIGH
	OMS-732	DRIVER, HYBRID	FAILS HIGH
	OMS-734	DRIVER, HYBRID	FAILS HIGH
	OMS-736	DRIVER, HYBRID	FAILS HIGH
	OMS-738	DRIVER, HYBRID	FAILS HIGH
	OMS-740	DRIVER, HYBRID	FAILS HIGH
	OMS-742	DRIVER, HYBRID	FAILS HIGH
	OMS-744	DRIVER, HYBRID	FAILS HIGH
	OMS-746	DRIVER, HYBRID	FAILS HIGH
	OMS-748	DRIVER, HYBRID	FAILS HIGH
05-6L-2251-1	OMS-416	DIODE	FAILS OPEN (LOSS OF OUTPUT)
	OMS-418	DIODE	FAILS OPEN (LOSS OF OUTPUT)
05-6L-2251-2	OMS-417	DIODE	FAILS SHORT
	OMS-419	DIODE	FAILS SHORT
05-6L-2252-1	OMS-410	DIODE	FAILS OPEN
05-6L-2252-2	OMS-411	DIODE	FAILS SHORT
05-6L-2253-1	OMS-450	DIODE	FAILS OPEN
	OMS-452	DIODE	FAILS OPEN
05-6L-2253-2	OMS-451	DIODE	FAILS SHORT
	OMS-453	DIODE	FAILS SHORT
05-6L-2253A-1	OMS-450A	DIODE	FAILS OPEN
	OMS-452A	DIODE	FAILS OPEN
05-6L-2253A-2	OMS-451A	DIODE	FAILS SHORT
	OMS-453A	DIODE	FAILS SHORT
05-6L-2253B-1	OMS-450B	DIODE	FAILS OPEN
	OMS-452B	DIODE	FAILS OPEN
05-6L-2253B-2	OMS-451B	DIODE	FAILS SHORT
	OMS-453B	DIODE	FAILS SHORT
05-6L-2253C-1	OMS-450C	DIODE	FAILS OPEN
	OMS-452C	DIODE	FAILS OPEN
05-6L-2253D-1	OMS-450D	DIODE	FAILS OPEN
	OMS-452D	DIODE	FAILS OPEN
05-6L-2255-1	OMS-450E	DIODE	FAILS OPEN
	OMS-452E	DIODE	FAILS OPEN
05-6L-2256-1	OMS-450F	DIODE	FAILS OPEN
	OMS-452F	DIODE	FAILS OPEN
05-6L-2256A-1	OMS-450G	DIODE	FAILS OPEN
	OMS-452G	DIODE	FAILS OPEN
05-6L-2256B-2	OMS-451C	DIODE	FAILS SHORT
	OMS-453C	DIODE	FAILS SHORT
05-6L-2257-1	OMS-454	DIODE	FAILS OPEN
	OMS-456	DIODE	FAILS OPEN

APPENDIX D  
IOA RECOMMENDED CRITICAL ITEMS - OMS EPD&C

NASA FMEA NUMBER	ASSESSMENT ID NUMBER	ITEM	FAILURE MODE
05-6L-2257-2	OMS-455	DIODE	FAILS SHORT
05-6L-2257-2	OMS-457	DIODE	FAILS SHORT
05-6L-2257A-1	OMS-454A	DIODE	FAILS OPEN
	OMS-456A	DIODE	FAILS OPEN
05-6L-2257A-2	OMS-455A	DIODE	FAILS SHORT
	OMS-457A	DIODE	FAILS SHORT
05-6L-2257B-1	OMS-454B	DIODE	FAILS OPEN
	OMS-456B	DIODE	FAILS OPEN
05-6L-2257B-2	OMS-455B	DIODE	FAILS SHORT
	OMS-457B	DIODE	FAILS SHORT
05-6L-2257C-1	OMS-454C	DIODE	FAILS OPEN
	OMS-456C	DIODE	FAILS OPEN
05-6L-2257D-1	OMS-454D	DIODE	FAILS OPEN
	OMS-456D	DIODE	FAILS OPEN
05-6L-2258-1	OMS-454E	DIODE	FAILS OPEN
	OMS-456E	DIODE	FAILS OPEN
05-6L-2259-1	OMS-454F	DIODE	FAILS OPEN
	OMS-456F	DIODE	FAILS OPEN
05-6L-2260-1	OMS-454G	DIODE	FAILS OPEN
	OMS-456G	DIODE	FAILS OPEN
05-6L-2260A-1	OMS-454H	DIODE	FAILS OPEN
	OMS-456H	DIODE	FAILS OPEN
05-6L-2260B-2	OMS-454I	DIODE	FAILS OPEN
	OMS-456I	DIODE	FAILS OPEN
NONE	OMS-517	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-523	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-528	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-535	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-561	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-567	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-575	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-583	RESISTOR, 12K 1/4W	FAILS SHORT
	OMS-661	RESISTOR, 5.1K 1/4W	FAILS SHORT
	OMS-666	RESISTOR, 5.1K 1/4W	FAILS SHORT
	OMS-689	SENSOR PRESSURE, OMS ENGINE REG OUT	ERRONEOUS OUTPUT (OPEN, SHORT, WRONG VALUE)



## APPENDIX E DETAILED ANALYSIS

This appendix contains the IOA analysis worksheets supplementing previous results reported in STSEOS Working Paper 1.0-WP-VA86001-21, Analysis of the Orbital Maneuvering Subsystem (OMS), (12 January 1987). Prior results were obtained independently and documented before starting the FMEA/CIL assessment activity. Supplemental analysis was performed to address failure modes not previously considered by the IOA. Each sheet identifies the hardware item being analyzed, parent assembly and function performed. For each failure mode possible causes are identified, and hardware and functional criticality for each mission phase are determined as described in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986. Failure mode effects are described at the bottom of each sheet and worst case criticality is identified at the top.

### LEGEND FOR IOA ANALYSIS WORKSHEETS

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#### Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

#### Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle.
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission.

#### Redundancy Screen A:

- 1 = Is Checked Out PreFlight
- 2 = Is Capable of Check Out PreFlight
- 3 = Not Capable of Check Out PreFlight
- NA = Not Applicable

#### Redundancy Screens B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 5/28/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 2/1R  
MDAC ID: 20001 ABORT: 2/1R

ITEM: GN2 FILTER  
FAILURE MODE: STRUCTURAL FAILURE, CONTAMINATION PASSAGE

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) GN2 ASSEMBLY
- 5) GN2 FILTER
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: 1181821

CAUSES: PIECE-PART STRUCTURAL FAILURE, MATERIAL DEFECT,  
MANUFACTURING DEFECT

EFFECTS/RATIONALE:

PASSAGE OF CONTAMINATION INTO REGULATOR MAY RESULT IN FAILURE OF REGULATOR. WITH FAILURE TO OPEN OF REGULATOR, ONE FAILURE (SAME FAILURE IN OTHER POD) AWAY FROM POSSIBLE LOSS OF LIFE/VEHICLE DUE TO INABILITY TO REPRESSURIZE ACCUMULATORS AND LOSS OF START CAPABILITY FOR BOTH ENGINES. FAILURE UNDETECTABLE UNTIL ENGINE LOST. CRIT 1/1 FOR MANUAL TAL CONTINGENCY OMS DUMP PURGE REQUIREMENT.

REFERENCES: 1) JSC 18958 2) MC621-0009  
3) VS70-9431099, 43AD, BD, 4) JSC 11174, 11.3

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 9/08/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 1/1  
MDAC ID: 20002 ABORT: 1/1

ITEM: GIMBAL RING BEARING, GIMBAL RING/MOUNTING PAD  
ATTACHMENT  
FAILURE MODE: STRUCTURAL FAILURE, DISATTACHMENT

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) GIMBAL RING BEARING, GIMBAL RING/MOUNTING PAD ATTACHMENT
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	1/1	RTLS:	1/1	
LIFTOFF:	1/1	TAL:	1/1	
ONORBIT:	1/1	AOA:	1/1	
DEORBIT:	1/1	ATO:	1/1	
LANDING/SAFING:	1/1			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, IMPROPER ASSEMBLY,  
MECHANICAL SHOCK, VIBRATION, MATERIAL/MANUFACTURING DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO EXCESSIVE  
MOVEMENT OF ENGINE RESULTING IN POSSIBLE RUPTURE OF CONNECTING  
PROP LINES ALLOWING LOSS AND LEAKAGE OF PROP, FIRE/EXPLOSION  
HAZARD, AND HAZARD TO GROUND CREW.

REFERENCES: 1) MC621-0009 2) MC621-0059 3) JSC 12770  
4) JSC 18958

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 8/19/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 2/1R  
MDAC ID: 20003 ABORT: 1/1

ITEM: PINION GEAR AND DRIVE ASSEMBLY  
FAILURE MODE: DELAYED OPERATION

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) PINION GEAR AND DRIVE ASSEMBLY
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/2R	TAL:	1/1
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, IMPROPER ASSEMBLY,  
MATERIAL/MANUFACTURING DEFECT, CONTAMINATION, BINDING

EFFECTS/RATIONALE:

FIRST FAILURE MAY CAUSE LOW INITIAL FUEL AND OXID FLOW RATES TO ENGINE RESULTING IN POSSIBLE DAMAGE TO AND LOSS OF ENGINE (MANUAL SHUTDOWN REQUIRED). WITH FIRST FAILURE, ONE FAILURE (ASSEMBLY IN REDUNDANT POD) AWAY FROM POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF BOTH ENGINES. FIRST FAILURE DURING RTLS OR TAL IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF ONE ENGINE AND POSSIBLE INABILITY TO COMPLETE TIME-CRITICAL OMS DUMP.

REFERENCES: 1) JSC 18958 2) MC621-0009 3) VS70-943099, 43AD, BD 4) 1181710 5) JSC 11174, 11.3 6) JSC 12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 8/20/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 3/1R  
MDAC ID: 20004 ABORT: 3/1R

ITEM: VALVE - PRESSURE RELIEF ASSEMBLY  
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) PROP STOR & DIST SUBSYSTEM
- 4) PRESSURE RELIEF ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [NA ] C [ P ]

LOCATION:

PART NUMBER: MC284-0421-0015, -0016

CAUSES: CONTAMINATION, FILTER BLOCKAGE

EFFECTS/RATIONALE:

FIRST FAILURE IS NO EFFECT. LOSS OF ALL REDUNDANCY (REGS)  
RESULTS IN POSSIBLE LOSS OF LIFE/VEHICLE DUE TO  
OVERPRESSURIZATION AND POSSIBLE RUPTURE OF PROP TANKS AND LINES  
RESULTING IN FIRE/EXPLOSION HAZARD AND HAZARD TO GROUND CREW.

REFERENCES: 1) 73A000014, #213, 214 2) VS70-431099 3) MC284-  
0421 4) VS70-943099, 43AA, BA 5) JSC 11174, 11.3 6) JSC 12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 8/20/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 1/1  
MDAC ID: 20005 ABORT: 1/1

ITEM: VALVE - BIPROP CAVITY PRESSURE RELIEF  
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) OME ASSEMBLY
- 5) BIPROP CAVITY PRESSURE RELIEF VALVE
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	1/1	TAL:	1/1
ONORBIT:	1/1	AOA:	1/1
DEORBIT:	1/1	ATO:	1/1
LANDING/SAFING:	1/1		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: CONTAMINATION, FILTER BLOCKAGE

EFFECTS/RATIONALE:

FIRST FAILURE OF POSSIBLE LOSS OF LIFE/VEHICLE. INABILITY TO RELIEVE OVERPRESSURIZATION OF BIPROP VALVE CAVITY MAY RESULT IN STRUCTURAL FAILURE OF THE BIPROP VALVE HOUSING, LOSS AND LEAKAGE OF PROP, FIRE/EXPLOSION HAZARD, AND HAZARD TO GROUND CREW.

REFERENCES: 1) MC621-0009 2) JSC 11174, 11.3 3) VS70-943099, 43AD, BD

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 9/08/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 2/1R  
MDAC ID: 20006 ABORT: 1/1

ITEM: PINION GEAR & DRIVE ASSEMBLY  
FAILURE MODE: FAILS MID-TRAVEL, PARTIALLY OPEN/CLOSED

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) GN2 ASSEMBLY
- 5) PINION GEAR & DRIVE ASSEMBLY
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/2R	TAL:	1/1
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, INADEQUATE LUBRICATION,  
MATERIAL/MANUFACTURING DEFECT, MECHANICAL SHOCK, CONTAMINATION

EFFECTS/RATIONALE:

FIRST FAILURE RESULTS IN LOSS OF AFFECTED ENGINE. WITH FIRST  
FAILURE, ONE FAILURE (SAME FAILURE IN OTHER POD) AWAY FROM LOSS  
OF LIFE/VEHICLE DUE TO LOSS OF BOTH ENGINES. FIRST FAILURE  
DURING RTLS OR TAL IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS  
OF ONE ENGINE AND POSSIBLE INABILITY TO COMPLETE TIME-CRITICAL  
OMS DUMP.

REFERENCES: 1) JSC 18958 2) MC621-0009 3) VS70-943099, 43AD,  
BD 4) 1181710 5) JSC 11174, 11.3 6) JSC 12770

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 7/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 3/1R  
MDAC ID: 20007 ABORT: 3/1R

ITEM: BEARING - SECONDARY DRIVE GEAR  
FAILURE MODE: PHYSICAL BINDING/JAMMING

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) ACTUATOR
- 6) BEARING - SECONDARY DRIVE GEAR
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, INADEQUATE LUBRICATION,  
MATERIAL DEFECT, MANUFACTURING DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE RESULTS IN LOSS OF SECONDARY CHANNEL DUE TO  
INABILITY TO DRIVE NUT TUBE. LOSS OF ALL REDUNDANCY IS POSSIBLE  
LOSS OF LIFE/VEHICLE DUE TO LOSS OF BOTH OMS ENGINES. RCS USAGE  
REQUIRED TO MAINTAIN ATTITUDE CONTROL DURING OMS BURNS MAY BE  
EXCESSIVE.

REFERENCES: 1) MC621-0009 2) MC621-0059 3) JSC 11174, 9.13,  
4) JSC 12770 5) JSC 18958



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 7/22/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 2/1R  
MDAC ID: 20008 ABORT: 1/1

ITEM: BEARING - SECONDARY DRIVE GEAR  
FAILURE MODE: STRUCTURAL FAILURE

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) ACTUATOR
- 6) BEARING - SECONDARY DRIVE GEAR
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	1/1
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:  
PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, MECHANICAL SHOCK,  
MATERIAL DEFECT, MANUFACTURING DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE RESULT IN POSSIBLE LOSS OF TVC FOR ONE ENGINE.  
FAILURE MAY CAUSE BINDING/JAMMING OF GIMBAL DRIVE. WITH FIRST  
FAILURE, ONE FAILURE (SAME FAILURE IN OTHER POD) AWAY FROM  
POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF BOTH OMS ENGINES.  
RCS USAGE REQUIRED FOR ATTITUDE CONTROL DURING OMS BURNS MAY BE  
EXCESSIVE. CRIT 1/1 FOR TAL POST-MECO OMS DUMP.

REFERENCES: 1) MC621-0009 2) MC621-0059 3) JSC 12770 4) JSC  
18958 5) JSC 11174, 9.13

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 9/14/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 2/1R  
MDAC ID: 20009 ABORT: 1/1

ITEM: DRIVE GEARS, PRIMARY AND SECONDARY  
FAILURE MODE: STRUCTURAL FAILURE

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) ACTUATOR
- 6) DRIVE GEARS, PRIMARY AND SECONDARY
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	1/1
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, MECHANICAL SHOCK, GEAR STRIPPING, TOOTH FRACTURES, MATERIAL DEFECT, MANUFACTURING DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE RESULTS IN POSSIBLE LOSS OF OR DEGRADED TVC FOR ONE OMS ENGINE. WITH FIRST FAILURE, ONE FAILURE (SAME FAILURE IN OTHER POD) AWAY FROM POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF BOTH OMS ENGINES. FIRST FAILURE DURING TAL IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF ONE ENGINE AND POSSIBLE INABILITY TO COMPLETE TIME-CRITICAL OMS DUMP POST-MECO.

REFERENCES: 1) MC621-0009 2) MC621-0059 3) JSC 12770 4) JSC 18958 5) JSC 11174, 9.13

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 9/14/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 1/1  
MDAC ID: 20010 ABORT: 1/1

ITEM: ENGINE/ACTUATOR AND ACTUATOR/VEHICLE ATTACH  
HARDWARE  
FAILURE MODE: STRUCTURAL FAILURE, DISATTACHMENT

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) ACTUATOR
- 6) ENGINE/ACTUATOR AND ACTUATOR/VEHICLE ATTACH HARDWARE
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT		HDW/FUNC
PRELAUNCH:	1/1	RTLS:		1/1
LIFTOFF:	1/1	TAL:		1/1
ONORBIT:	1/1	AOA:		1/1
DEORBIT:	1/1	ATO:		1/1
LANDING/SAFING:	1/1			

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION:  
PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, IMPROPER ASSEMBLY,  
MECHANICAL SHOCK, VIBRATION, MATERIAL/MANUFACTURING DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO  
UNRESTRAINED MOVEMENT OF ACTUATOR RESULTING IN POSSIBLE RUPTURE  
OF ENGINE PROP LINES, AND UNRESTRAINED MOVEMENT OF AN OMS ENGINE  
IN ONE AHS.

REFERENCES: 1) MC621-0009 2) MC621-0059 3) JSC 12770 4) JSC  
18958

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 9/14/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 2/1R  
MDAC ID: 20011 ABORT: 1/1

ITEM: BEARING - ACTUATOR/VEHICLE ATTACHMENT  
FAILURE MODE: PHYSICAL BINDING/JAMMING

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) TVC ASSEMBLY
- 5) ACTUATOR
- 6) ACTUATOR/VEHICLE ATTACHMENT BEARING
- 7)
- 8)
- 9)

	CRITICALITIES	
FLIGHT PHASE	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/2R	TAL: 1/1
ONORBIT:	2/2	AOA: 3/3
DEORBIT:	2/1R	ATO: 2/1R
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: PIECE-PART STRUCTURAL FAILURE, IMPROPER ASSEMBLY,  
INADEQUATE LUBRICATION, MANUFACTURING/MATERIAL DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE RESULTS IN LOSS OF OR DEGRADED TVC FOR ONE OMS ENGINE. WITH FIRST FAILURE, ONE FAILURE (SAME FAILURE IN OTHER POD) AWAY FROM POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF BOTH OMS ENGINES. FIRST FAILURE DURING TAL IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF ONE ENGINE AND POSSIBLE INABILITY TO COMPLETE TIME-CRITICAL OMS DUMP POST-MECO.

REFERENCES: 1) MC621-0009 2) MC621-0059 3) JSC 12770 4) JSC 18958 5) JSC 11174, 9.13

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/09/87  
SUBSYSTEM: OMS  
MDAC ID: 20012

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 2/1R  
ABORT: 1/1

ITEM: GN2 PRESSURE REGULATOR AND PRESSURE RELIEF VALVE  
FAILURE MODE: SIMULTANEOUS REG FAIL OPEN AND RELIEF VALVE FAIL  
CLOSED

LEAD ANALYST: C.D. PRUST

SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) OME SUBSYSTEM
- 4) GN2 ASSEMBLY
- 5) GN2 PRESSURE REGULATOR AND PRESSURE RELIEF VALVE
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/2R	TAL:	1/1
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION:

PART NUMBER: MC621-0009

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE,  
MATERIAL/MANUFACTURING DEFECT, PISTON JAMS

EFFECTS/RATIONALE:

FAILURE OF PISTON CAUSE SIMULTANEOUS REG FAIL OPEN AND RELIEF VALVE FAIL CLOSED. FIRST FAILURE RESULTS IN OVERPRESSURIZATION AND POSSIBLE RUPTURE OF DOWNSTREAM LINES AND COMPONENTS, LEADING TO LOSS OF THE OMS ENGINE. WITH FIRST FAILURE, ONE FAILURE (SAME FAILURE IN OTHER POD) AWAY FROM POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF BOTH OMS ENGINES. FIRST FAILURE DURING RTLS OR TAL IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO LOSS OF ONE ENGINE AND POSSIBLE INABILITY TO COMPLETE A TIME-CRITICAL OMS DUMP.

REFERENCES: 1) JSC 18958 2) MC621-0009 3) VS70-943099, 43AD, BD 4) JSC 11174, 11.3 5) JSC 19950

REPORT DATE 2/26/88

E-13

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 11/10/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 3/2R  
MDAC ID: 20013 ABORT: 3/2R

ITEM: HELIUM PRESSURE REGULATOR ASSEMBLY  
FAILURE MODE: EXTERNAL LEAKAGE THROUGH BELLOWS AND SENSING PORT

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) HE PRESS SUBSYSTEM
- 4) HELIUM PRESSURE REGULATOR ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/2R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION:

PART NUMBER: 73P620002

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE,  
MATERIAL/MANUFACTURING DEFECT, BELLOWS LEAK, SEAL LEAK

EFFECTS/RATIONALE:

FIRST FAILURE IS NO EFFECT. LOSS OF ALL REDUNDANCY (PARALLEL  
REGULATOR LEG) RESULTS IN POSSIBLE LOSS OF MISSION. SLOW HELIUM  
LEAK THROUGH SENSING PORT RESULTING FROM BELLOWS FAILURE COULD  
RESULT IN MISSION MODIFICATION IN ORDER TO CONSERVE HELIUM  
PRESSURANT OR ACHIEVE FULL BLOW-DOWN CAPABILITY IN AFFECTED POD.

REFERENCES: 1) JSC 18958 2) MC621-0009 3) VS70-943099, 43AD,  
BD 4) JSC 11174, 11.3 5) JSC 19950

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/01/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 3/1R  
MDAC ID: 20014 ABORT: 3/1R

ITEM: VALVE - PROPELLANT TANK ISOLATION  
FAILURE MODE: RELIEF DEVICE FAILS CLOSED

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) PROP STOR & DIST SUBSYSTEM
- 4) PROP TANK ISOL VALVES
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/3
LIFTOFF:	3/1R	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [NA ] C [ P ]

LOCATION:

PART NUMBER: MC284-0430

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION,  
MATERIAL/MANUFACTURING DEFECT

EFFECTS/RATIONALE:

PREVIOUS FAILURE REQUIRED FOR VALVES TO BE CLOSED. FAILURE OF  
RELIEF DEVICE IN ONE ISOL VALVE IS UNDETECTABLE AND HAS NO  
EFFECT. PARALLEL DEVICE WILL RELIEVE PRESSURE. FAILURE OF  
DEVICES IN BOTH VALVES IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO  
POSSIBLE OVERPRESSURIZATION AND RUPTURE OF DOWNSTREAM LINES.  
VALVES OPEN DURING ABORTS. STANDBY REDUNDANCY (B SCREEN NA).

REFERENCES: 1) 73A000014 2) VS70-943099, 43AB, BB 3) JSC  
11174, 11.3 4) MC284-0430

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/01/88 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: OMS FLIGHT: 3/1R  
MDAC ID: 20015 ABORT: 3/1R

ITEM: VALVE - CROSSFEED  
FAILURE MODE: RELIEF DEVICE FAILS CLOSED

LEAD ANALYST: C.D. PRUST SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) HARDWARE COMPONENTS
- 2) ASSEMBLIES
- 3) PROP STOR & DIST SUBSYSTEM
- 4) CROSSFEED VALVES
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [ 2 ] B [NA ] C [ P ]

LOCATION:

PART NUMBER: MC284-0430

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION,  
MATERIAL/MANUFACTURING DEFECT

EFFECTS/RATIONALE:

FIRST FAILURE IS NO EFFECT. LOSS OF ALL REDUNDANCY (ALL OTHER  
CROSSFEED VALVES) IS POSSIBLE LOSS OF LIFE/VEHICLE DUE TO  
OVERPRESSURIZATION AND POSSIBLE RUPTURE OF CROSSFEED LINES.  
STANDBY REDUNDANCY (B SCREEN NA).

REFERENCES: 1) 73A000014 2) VS70-943099, 43AC, BC 3) JSC  
11174, 11.3 4) MC284-0430



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/11/88  
SUBSYSTEM: OMS  
MDAC ID: 21001

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 2/2  
ABORT: 1/1

ITEM: DEDICATED SIGNAL CONDITIONER  
FAILURE MODE: FAILS OPEN, ONE CIRCUIT PATH

LEAD ANALYST: W.A. HAUFLE

SUBSYS LEAD: C.D. PRUST

BREAKDOWN HIERARCHY:

- 1) ELECTRICAL COMPONENTS
- 2) INSTRUMENTATION
- 3) OME SUBSYSTEM
- 4) OME ASSEMBLY
- 5) DEDICATED SIGNAL CONDITIONER
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	2/2	TAL:	1/1
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: OMS PODS, AV BAY 4,5,6, MIDBODY  
PART NUMBER: 40V75A23,40V75A74,40V75A21,40V75A23,40V75A74,  
51V75A25,51V75A77,54V75A19,55V75A20

CAUSES: CONTAMINATION, VIBRATION, PIECE PART FAILURE, OVERLOAD

EFFECTS/RATIONALE:

WORST CASE WOULD BE TO LOSE ABILITY TO UTILIZE THE OMS ENGINE REGULATOR OUTLET PRESSURE SENSOR, PT006. THIS COULD LEAD TO FALSELY FAILING THE OMS ENGINE (SEE FLIGHT RULE 6-4, LINE FAILURE). FOR LO& OO, LOSS OF AN OMS ENGINE WOULD RESULT IN LIMITING ATTITUDE TO RCS DEORBIT CAPABILITIES, THUS LOSS OF MISSION. LOSS OF REDUNDANCY IN THE DO PHASE COULD LEAD TO FAILURE OF TWO OMS ENGINES AND THEREFORE LOSS OF DEORBIT CAPABILITY IF ABOVE THE RCS REDLINE. LOSS OF ONE OMS ENGINE DURING RTLS & TAL WOULD RESULT IN INABILITY TO PERFORM TIME CRITICAL PROPELLANT DUMP.

REFERENCES: VS70-943099 REV A EO B12; JSC-20923 PCN-1



## APPENDIX F

### NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/RECOMMENDATIONS

This section provides a cross reference between the NASA FMEA and corresponding IOA analysis worksheet(s). The Appendix F identifies: NASA FMEA Number, IOA Assessment Number, NASA criticality and redundancy screen data, and IOA recommendations.

#### Appendix F Legend:

#### OMS HARDWARE CODES

#### RESOLVED ISSUES

<u>Code</u>	<u>Definition</u>
-------------	-------------------

- |        |   |
|--------|---|
| RES 1: | NASA/RI changed criticalities and/or screens for this failure mode per IOA issue. |
| RES 2: | NASA/RI added this new FMEA per IOA issue.  |
| RES 3: | NASA/RI added this failure mode to this FMEA per IOA issue.                       |
| RES 4: | NASA/RI added this item to this FMEA per IOA issue.                               |
| RES 5: | NASA/RI revised "effects" per IOA issue.  |
| RES 6: | NASA/RI made editorial revisions per IOA issue.                                   |
| RES 7: | NASA/RI deleted the FMEA for this item and failure mode per IOA issue.            |
| RES 8: | NASA/RI added a cause to this FMEA per IOA issue.                                 |
| RES 9: | NASA/RI upgraded this failure mode to an abort criticality 1/1 per IOA issue.     |

#### UNRESOLVED ISSUES

- HDW 1: IOA recommends that this failure mode be upgraded to a CIL item.
- HDW 2: IOA recommends a criticality and/or screen upgrade for this failure mode.
- HDW 3: IOA recommends that this failure mode be upgraded to an abort criticality 1/1.
- HDW 4: IOA recommends the addition of this failure mode to the FMEA/CIL.
- HDW 5: IOA recommends the addition of this item and failure mode to the FMEA/CIL.
- HDW 6: IOA recommends editorial revisions on this FMEA.
- HDW 7: IOA recommends that this FMEA be split into two FMEAs.

#### OMS EPD&C CODES

#### UNRESOLVED ISSUES

- EPDC 1: IOA recommends that this failure mode be upgraded to a CIL item.
- EPDC 2: IOA recommends a criticality and/or screen upgrade for this failure mode.
- EPDC 3: IOA recommends a criticality and/or screen downgrade for this failure mode.
- EPDC 4: IOA recommends the addition of this failure mode to the FMEA/CIL.
- EPDC 5: IOA recommends the addition of this item and failure mode to the FMEA/CIL.
- EPDC 6: IOA recommends editorial revisions on this FMEA.
- EPDC 7: IOA recommends that a non-credible failure mode be removed from this FMEA.

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
03-3-1001-1	OMS-100	1/1				/					
	OMS-101	1/1				/					
03-3-1002-1	OMS-102	2/1R	F	F	P	2/1R	F	F	P	HDW 4	X
03-3-1002-2	OMS-104	3/3				/					
03-3-1002-3	OMS-103	3/3				3/3				HDW 4	X
03-3-1003-1	OMS-108	3/1R	P	F	P	/				RES 1	
	OMS-109	3/1R	P	F	P	/				RES 1	
03-3-1003-2	OMS-107	2/1R	P	P	P	/				HDW 7	X
	OMS-111	2/1R	P	P	P	2/1R	P	F	F	RES 3, HDW 2, 7	X
03-3-1004-1	OMS-118	3/1R	P	F	P	/				RES 5	
03-3-1004-2	OMS-119	2/1R	P	P	F	2/1R	P	F	F	HDW 2	X
	OMS-120	2/1R	P	P	F	2/1R	P	F	F	HDW 2	X
	OMS-121	2/1R	P	P	F	2/1R	P	F	F	HDW 2	X
03-3-1004-3	OMS-20013X	3/2R	P	F	P	/					
03-3-1006-1	OMS-127	3/3				3/1R	P	F	P	HDW 1	X
	OMS-128	3/3				3/1R	P	F	P	HDW 1	X
03-3-1006-2	OMS-126	2/1R	P	F	P	/					
	OMS-130	2/1R	P	F	P	/				RES 3	
03-3-1007-1	OMS-133	3/3				2/1R	P	F	P	HDW 1, 7	X
	OMS-134	3/3				3/1R	P	F	P	HDW 1, 7	X
03-3-1007-2	OMS-132	2/1R	P	F	P	/					
03-3-1007-3	OMS-136	1/1				/				RES 2	
03-3-1008-1	OMS-154	3/3				/					
03-3-1009-1	OMS-145	1/1				/				RES 6	
03-3-1009-2	OMS-141	3/1R	F	NA	P	/					
03-3-1009-3	OMS-142	2/1R	P	F	P	/					
	OMS-143	2/1R	P	F	P	/				RES 3	
03-3-1009-4	OMS-141A	3/1R	P	NA	P	/					
	OMS-20004X	3/1R	P	NA	P	/				RES 3	
03-3-1009-5	OMS-144	2/1R	P	NA	P	/				RES 1	
03-3-1101-1	OMS-105	1/1				/					
	OMS-110	1/1				/				RES 4	
	OMS-116	1/1				/					
	OMS-122	1/1				/				RES 4	
	OMS-129	1/1				/				RES 4	
	OMS-135	1/1				/				RES 4	
	OMS-145A	1/1				/				RES 4	
	OMS-155	1/1				/				RES 4	
03-3-1205-1	OMS-113	3/1R	F	F	P	3/1R	F	F	P	HDW 4	X
	OMS-123	3/1R	F	F	P	3/1R	F	F	P	HDW 4	X
	OMS-137	3/1R	F	F	P	3/1R	F	F	P	HDW 4	X
	OMS-146	3/1R	F	F	P	3/1R	F	F	P	HDW 4	X

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA		IOA RECOMMENDATIONS *			
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE
03-3-1205-2	OMS-115	3/3		/			
	OMS-125	3/3		/			
	OMS-139	3/3		/			
	OMS-148	3/3		/			
03-3-1205-3	OMS-114	3/3		3/3		HDW 4	X
	OMS-124	3/3		3/3		HDW 4	X
	OMS-138	3/3		3/3		HDW 4	X
	OMS-147	3/3		3/3		HDW 4	X
03-3-2001-1	OMS-150	2/1R	F F P	2/1R	F F P	RES 4, HDW 4	X
	OMS-156	2/1R	F F P	2/1R	F F P	HDW 4	X
	OMS-168	2/1R	F F P	2/1R	F F P	RES 4, HDW 4	X
	OMS-171	2/1R	F F P	2/1R	F F P	RES 4, HDW 4	X
	OMS-174	2/1R	F F P	2/1R	F F P	RES 4, HDW 4	X
	OMS-231	2/1R	F F P	2/1R	F F P	RES 4, HDW 4	X
03-3-2001-2	OMS-152	3/3		/		RES 4	
	OMS-158	3/3		/			
	OMS-170	3/3		/		RES 4	
	OMS-173	3/3		/		RES 4	
	OMS-176	3/3		/		RES 4	
	OMS-233	3/3		/		RES 4	
03-3-2001-3	OMS-151	3/3		3/3		RES 4, HDW 4	X
	OMS-157	3/3		3/3		HDW 4	X
	OMS-169	3/3		3/3		RES 4, HDW 4	X
	OMS-172	3/3		3/3		RES 4, HDW 4	X
	OMS-175	3/3		3/3		RES 4, HDW 4	X
	OMS-232	3/3		3/3		RES 4, HDW 4	X
03-3-20010-1	OMS-216	1/1		/		RES 8	
03-3-20011-1	OMS-219	1/1		/		RES 8	
03-3-2002-1	OMS-163	1/1		/			
03-3-2002-2	OMS-164	2/1R	P F P	/			
03-3-2004-1	OMS-193	2/2		/			
03-3-2005-1	OMS-192	3/2R	P F P	/			
03-3-2006-3	OMS-190	1/1		/			
	OMS-191	1/1		/			
03-3-2007-1	OMS-199	2/1R	P NA P	/			
	OMS-201	2/1R	P NA P	/			
03-3-2007-2	OMS-198	2/1R	P F P	/			
	OMS-203	2/1R	P F P	/		RES 1, 3	
03-3-2007-3	OMS-202A	1/1		/			
03-3-2008-1	OMS-224	3/2R	P P P	/			
	OMS-226	3/2R	P P P	/			
03-3-2008-2	OMS-223	3/1R	P P P	/			
	OMS-228	3/1R	P P P	/		RES 3	

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
03-3-2008-3	OMS-227A	1/1				/					
03-3-2009-1	OMS-165	2/1R	F	F	P	2/1R	F	F	P	RES 4, HDW 4	X
	OMS-207	2/1R	F	F	P	2/1R	F	F	P	RES 4, HDW 4	X
	OMS-210	2/1R	F	F	P	2/1R	F	F	P	HDW 4	X
	OMS-213	2/1R	F	F	P	2/1R	F	F	P	RES 4, HDW 4	X
	OMS-234	2/1R	F	F	P	2/1R	F	F	P	RES 4, HDW 4	X
03-3-2009-2	OMS-167	3/3				/				RES 4	
	OMS-209	3/3				/				RES 4	
	OMS-212	3/3				/					
	OMS-215	3/3				/				RES 4	
	OMS-236	3/3				/				RES 4	
03-3-2009-3	OMS-166	3/3				3/3				RES 4, HDW 4	X
	OMS-208	3/3				3/3				RES 4, HDW 4	X
	OMS-211	3/3				3/3				HDW 4	X
	OMS-214	3/3				3/3				RES 4, HDW 4	X
	OMS-235	3/3				3/3				RES 4, HDW 4	X
03-3-2101-1	OMS-194	1/1				/				RES 8	
	OMS-202	1/1				/				RES 4, 8	
	OMS-227	1/1				/				RES 4, 8	
	OMS-260	1/1				/				RES 4, 8	
03-3-2102-1	OMS-194A	1/1				/				RES 8	
03-3-2601-1	OMS-160	1/1				/				RES 8	
	OMS-195	1/1				/				RES 8	
	OMS-239	1/1				/				RES 8	
	OMS-242	1/1				/				RES 8	
03-3-2602-1	OMS-245	1/1	NA	NA	NA	/				RES 8	
03-3-3202-1	OMS-177	3/3				/					
	OMS-178	3/3				/					
	OMS-181	3/3				/					
	OMS-182	3/3				/					
	OMS-183A	3/3				/					
03-3-3202-3	OMS-186	3/3				/					
	OMS-183	3/3				/					
03-3-3202-4	OMS-182A	3/3				/					
03-3-3284-1	OMS-187	3/3				/					
	OMS-189	3/3				/					
03-3-4001-1	OMS-257	2/1R	P	P	P	/					
	OMS-327	2/1R	P	P	P	/					
	OMS-338	2/1R	P	P	P	/					
	OMS-348A	2/1R	P	P	P	/					
03-3-4001-2	OMS-256	2/1R	P	P	P	/					
	OMS-326	2/1R	P	P	P	/					
	OMS-337	2/1R	P	P	P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
03-3-4001-3	OMS-340	2/1R	P	P	P	/					
	OMS-348	2/1R	P	P	P	/					
	OMS-349	2/1R	P	P	P	/					
	OMS-258	2/1R	P	F	P	/				RES 3	
	OMS-261	2/1R	P	F	P	/				RES 3	
	OMS-331	2/1R	P	F	P	/				RES 1	
	OMS-339	2/1R	P	F	P	/				RES 1	
	OMS-344	2/1R	P	F	P	/				RES 3	
	OMS-20003X	2/1R	P	F	P	/				RES 3	
	OMS-20006X	2/1R	P	F	P	/				RES 3	
03-3-4001-4	OMS-328	2/1R	P	P	P	/					
03-3-4001-5	OMS-341	2/1R	P	P	P	/					
	OMS-343	2/1R	P	P	P	/					
03-3-4001-6	OMS-259	2/1R	P	F	P	/				RES 1	
	OMS-264	2/1R	P	F	P	/				RES 3	
03-3-4002-1	OMS-249	2/1R	P	P	P	/					
03-3-4002-2	OMS-248	3/3				1/1				HDW 1	X
03-3-4003-1	OMS-270	1/1				/					
03-3-4004-1	OMS-280	1/1				/					
	OMS-281	1/1				/					
03-3-4004-2	OMS-282	1/1				/				RES 6	
03-3-4005-1	OMS-285A	1/1				/					
03-3-4005-2	OMS-283	1/1				/					
	OMS-284	1/1				/					
03-3-4006-1	OMS-285	1/1				/					
	OMS-286	1/1				/					
03-3-4501-1	OMS-295	1/1				/					
	OMS-296	1/1				/					
03-3-45011-1	OMS-316	3/1R	P	P	P	/				RES 9	
	OMS-317	3/1R	P	P	P	/				RES 9	
	OMS-318	3/1R	P	P	P	/				RES 9	
03-3-45011-2	OMS-315	3/1R	P	NA	P	/				RES 1	
03-3-45011-3	OMS-20012X	2/1R	P	P	P	/					
03-3-4502-1	OMS-287	3/1R	F	F	P	3/1R	F	F	P	HDW 4	X
03-3-4502-2	OMS-289	3/3				/					
03-3-4502-3	OMS-288	3/3				3/3				HDW 4	X
03-3-4503-1	OMS-300	3/1R	P	F	P	/					
	OMS-301	3/1R	P	F	P	/				RES 1	
03-3-4503-2	OMS-299	3/1R	P	P	P	/				RES 9, HDW 6, 7	X
	OMS-303	3/1R	P	P	P	2/1R	P	F	P	RES 3, HDW 2, 7	X
03-3-4505-1	OMS-306	3/1R	P	P	P	/					
03-3-4505-2	OMS-305	2/1R	P	F	P	/				RES 1, 9	
	OMS-308	2/1R	P	F	P	/				RES 1, 9	



## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
	OMS-309	2/1R	P	F	P	/				RES 1, 9	
03-3-4506-1	OMS-312	3/1R	F	F	P	3/1R	F	F	P	HDW 4	X
03-3-4506-2	OMS-314	3/3				/					
03-3-4506-3	OMS-313	3/3				3/3				HDW 4	X
03-3-4507-1	OMS-253	2/1R	F	F	P	2/1R	F	F	P	HDW 4	X
	OMS-267	2/1R	F	F	P	2/1R	F	F	P	HDW 4	X
	OMS-273	2/1R	F	F	P	2/1R	F	F	P	HDW 4	X
	OMS-277	2/1R	F	F	P	2/1R	F	F	P	HDW 4	X
03-3-4507-2	OMS-255	3/3				/					
	OMS-269	3/3				/					
	OMS-275	3/3				/					
	OMS-279	3/3				/					
03-3-4507-3	OMS-254	3/3				3/3				HDW 4	X
	OMS-268	3/3				3/3				HDW 4	X
	OMS-274	3/3				3/3				HDW 4	X
	OMS-278	3/3				3/3				HDW 4	X
03-3-4508-1	OMS-352	3/1R	P	F	P	/					
	OMS-353	3/1R	P	F	P	/					
	OMS-358	3/1R	P	F	P	/					
	OMS-359	3/1R	P	F	P	/					
03-3-4508-2	OMS-351	3/3				/					
	OMS-355	3/3				/				RES 3	
	OMS-357	3/3				/					
	OMS-360	3/3				/					
	OMS-361	3/3				/				RES 4	
03-3-4510-1	OMS-290	2/1R	P	P	P	/					
	OMS-293	2/1R	P	P	P	/				RES 4	
	OMS-297	2/1R	P	P	P	/				RES 4	
	OMS-302	2/1R	P	P	P	/				RES 4	
	OMS-307	2/1R	P	P	P	/				RES 4	
	OMS-310	2/1R	P	P	P	/					
	OMS-324	2/1R	P	P	P	/					
	OMS-329	2/1R	P	P	P	/				RES 4	
	OMS-354	2/1R	P	P	P	/				RES 4	
03-3-4511-1	OMS-294	3/1R	P	F	P	/				HDW 6	X
03-3-4511-2	OMS-292	3/3				/					
03-3-4551-1	OMS-320	3/1R	P	F	P	/					
	OMS-321	3/1R	P	F	P	/					
03-3-4551-2	OMS-319	2/1R	P	F	P	/				RES 1, 9	
03-3-4552-1	OMS-322	2/1R	P	P	P	1/1				HDW 2, 7	X
	OMS-323	2/1R	P	P	P	/				HDW 7	X
03-3-4601-1	OMS-250	1/1				/					
03-3-6401-1	OMS-365	3/1R	P	P	P	/					
03-3-64011-1	OMS-364	1/1				/					

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NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
03-3-6402-1	OMS-368	1/1				/					
	OMS-377	1/1				/					
	OMS-381	1/1				/					
	OMS-20010X	1/1				/					
03-3-6402-2	OMS-367	2/1R	P	P	P	2/1R	P	P	P	HDW 3	X
	OMS-376	2/1R	P	P	P	2/1R	P	P	P	HDW 3	X
	OMS-379	2/1R	P	P	P	2/1R	P	P	P	HDW 3	X
	OMS-20009X	2/1R	P	P	P	2/1R	P	P	P	HDW 3	X
	OMS-20011X	2/1R	P	P	P	2/1R	P	P	P	HDW 3	X
03-3-6403-1	OMS-371	3/1R	P	P	P	/					
03-3-6404-1	OMS-375	3/1R	P	P	P	/				HDW 6	X
	OMS-20007X	3/1R	P	P	P	/				HDW 6	X
03-3-6406-1	OMS-378	3/3	NA	NA	NA	2/1R	P	P	P	HDW 1, 3	X
03-3-64071-1	OMS-382	3/1R	P	P	P	/					
	OMS-383	3/1R	P	P	P	/					
03-3-6408-1	OMS-362	1/1				/					
03-3-6409-1	OMS-363	2/1R	P	P	P	2/1R	P	P	P	HDW 3	X
NONE	OMS-106	/				/					
	OMS-112	/				/					
	OMS-117	/				/					
	OMS-131	/				/					
	OMS-140	/				/					
	OMS-149	/				/					
	OMS-153	/				/					
	OMS-159	/				/					
	OMS-161	/				/					
	OMS-162	/				/					
	OMS-179	/				/					
	OMS-180	/				/					
	OMS-184	/				/					
	OMS-185	/				/					
	OMS-188	/				/					
	OMS-196	/				/					
	OMS-197	/				/					
	OMS-200	/				/					
	OMS-204	/				/					
	OMS-205	/				/					
	OMS-206	/				/					
	OMS-217	/				/					
	OMS-218	/				/					
	OMS-220	/				/					
	OMS-221	/				/					
	OMS-222	/				/					
	OMS-225	/				/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA		IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE	
NONE	OMS-229	/		/				
	OMS-230	/		/				
	OMS-237	/		/				
	OMS-238	/		/				
	OMS-240	/		/				
	OMS-241	/		/				
	OMS-243	/		/				
	OMS-244	/		/				
	OMS-246	/		/				
	OMS-247	/		/				
	OMS-251	/		/				
	OMS-252	/		/				
	OMS-262	/		1/1		HDW 5		X
	OMS-263	/		2/1R	P F P	HDW 5		X
	OMS-265	/		1/1		HDW 5		X
	OMS-266	/		/				
	OMS-271	/		/				
	OMS-272	/		/				
	OMS-276	/		/				
	OMS-291	/		/				
	OMS-298	/		/				
	OMS-304	/		/				
	OMS-311	/		/				
	OMS-325	/		/				
	OMS-330	/		2/1R	P P P	HDW 4		X
	OMS-332	/		/				
	OMS-333	/		/				
	OMS-334	/		/				
	OMS-335	/		/				
	OMS-336	/		/				
	OMS-342	/		3/1R	P F P	HDW 4		X
	OMS-345	/		3/3		HDW 5		X
	OMS-346	/		3/3		HDW 5		X
	OMS-347	/		3/3		HDW 5		X
	OMS-350	/		/				
	OMS-356	/		/				
	OMS-366	/		3/1R	P P P	HDW 4		X
	OMS-369	/		3/1R	P P P	HDW 5		X
	OMS-370	/		3/1R	P P P	HDW 5		X
	OMS-372	/		3/1R	P P P	HDW 4		X
	OMS-373	/		2/1R	P P P	HDW 4		X
	OMS-374	/		2/1R	P P P	HDW 4		X
	OMS-380	/		/				

# APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA		IOA RECOMMENDATIONS *				
NASA	IOA	CRIT	SCREENS	CRIT	SCREENS	OTHER	ISSUE	
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A B C	HW/F	A B C	(SEE LEGEND CODE)		
NONE	OMS-20001X	/		/		RES 7		
	OMS-20002X	/		1/1		HDW 4	X	
	OMS-20005X	/		1/1		HDW 5	X	
	OMS-20008X	/		2/1R	P P P	HDW 5	X	
	OMS-20014X	/		3/1R	P NA P	HDW 4	X	
	OMS-20015X	/		3/1R	P NA P	HDW 4	X	

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA		IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE	
03-3-1801-1	OMS-445	3/3		3/2R	P P P	EPD&C 2	X	
	OMS-446	3/3		3/2R	P P P	EPD&C 2	X	
03-3-1802-1	OMS-447	3/3		3/2R	P P P	EPD&C 2	X	
	OMS-448	3/3		/				
03-3-2801-1	OMS-608	3/3		/				
	OMS-609	3/3		/				
03-3-2803-1	OMS-610	3/3		2/2		EPD&C 1	X	
	OMS-611	3/3		2/2		EPD&C 1	X	
03-3-2804-1	OMS-990A	3/3		/				
	OMS-991A	3/3		/				
	OMS-992A	3/3		/				
	OMS-993A	3/3		/				
	OMS-994A	3/3		2/2		EPD&C 1	X	
	OMS-995A	3/3		/				
	OMS-996A	3/3		/				
	OMS-997A	3/3		2/2		EPD&C 1	X	
	OMS-998A	3/3		2/2		EPD&C 1	X	
	OMS-999A	3/3		/				
	OMS-1000A	3/3		/				
	OMS-1001A	3/3		2/2		EPD&C 1	X	
	OMS-1002A	3/3		2/2		EPD&C 1	X	
03-3-4081-1	OMS-693	3/3		3/2R	P P P	EPD&C 2	X	
	OMS-694	3/3		3/2R	P P P	EPD&C 2	X	
03-3-4581-1	OMS-687	3/3		3/2R	P P P	EPD&C 2	X	
	OMS-688	3/3		3/2R	P P P	EPD&C 2	X	
03-3-4801-1	OMS-701	3/3		/				
03-3-4802-1	OMS-698	3/3		3/2R	P P P	EPD&C 2	X	
	OMS-700	3/3		/				
03-3-4803-1	OMS-696	3/2R	P P P	/				
	OMS-697	3/2R	P P P	/				
03-3-4804-1	OMS-699	3/2R	P P P	/				
03-3-4805-1	OMS-695	3/2R	P P P	/				
03-3-6407-1	OMS-702	3/1R	P P P	/				
	OMS-703	3/1R	P P P	/				
	OMS-704	3/1R	P P P	/				
	OMS-705	3/1R	P P P	/				
03-3-7001-1	OMS-782	3/2R	P P P	/				
	OMS-783	3/2R	P P P	/		EPD&C 7	X	
	OMS-784	3/2R	P P P	/				
	OMS-785	3/2R	P P P	/		EPD&C 7	X	
	OMS-786	3/2R	P P P	/				
	OMS-787	3/2R	P P P	/		EPD&C 7	X	
	OMS-788	3/2R	P P P	/				

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *			
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE	
03-3-7001-1	OMS-789	3/2R	P P P	/		EPD&C 7	X	
	OMS-790	3/2R	P P P	/				
	OMS-791	3/2R	P P P	/		EPD&C 7	X	
	OMS-792	3/2R	P P P	/				
	OMS-793	3/2R	P P P	/		EPD&C 7	X	
	OMS-794	3/2R	P P P	/				
	OMS-795	3/2R	P P P	/		EPD&C 7	X	
	OMS-796	3/2R	P P P	/				
	OMS-797	3/2R	P P P	/		EPD&C 7	X	
	OMS-798	3/2R	P P P	/				
	OMS-799	3/2R	P P P	/				
	OMS-800	3/2R	P P P	/				
	OMS-801	3/2R	P P P	/				
	OMS-802	3/2R	P P P	/				
	OMS-803	3/2R	P P P	/				
	OMS-804	3/2R	P P P	/				
	OMS-805	3/2R	P P P	/				
	OMS-806	3/2R	P P P	/				
	OMS-807	3/2R	P P P	/		EPD&C 7	X	
	OMS-808	3/2R	P P P	/				
	OMS-809	3/2R	P P P	/		EPD&C 7	X	
	OMS-810	3/2R	P P P	/				
	OMS-811	3/2R	P P P	/		EPD&C 7	X	
	OMS-812	3/2R	P P P	/				
	OMS-813	3/2R	P P P	/		EPD&C 7	X	
	OMS-814	3/2R	P P P	/				
	OMS-815	3/2R	P P P	/		EPD&C 7	X	
	OMS-816	3/2R	P P P	/				
	OMS-817	3/2R	P P P	/		EPD&C 7	X	
	OMS-818	3/2R	P P P	/				
	OMS-819	3/2R	P P P	/		EPD&C 7	X	
	OMS-820	3/2R	P P P	/				
	OMS-821	3/2R	P P P	/		EPD&C 7	X	
OMS-822	3/2R	P P P	/					
OMS-823	3/2R	P P P	/		EPD&C 7	X		
OMS-824	3/2R	P P P	/					
OMS-825	3/2R	P P P	/		EPD&C 7	X		
OMS-826	3/2R	P P P	/					
OMS-827	3/2R	P P P	/		EPD&C 7	X		
OMS-828	3/2R	P P P	/					
OMS-829	3/2R	P P P	/		EPD&C 7	X		
OMS-830	3/2R	P P P	/					
OMS-831	3/2R	P P P	/		EPD&C 7	X		

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE		
03-3-7001-1	OMS-832	3/2R	P P P	/					
	OMS-833	3/2R	P P P	/					
	OMS-834	3/2R	P P P	/					
	OMS-835	3/2R	P P P	/		EPD&C 7			X
	OMS-836	3/2R	P P P	/					
	OMS-837	3/2R	P P P	/		EPD&C 7			X
	OMS-838	3/2R	P P P	/					
	OMS-839	3/2R	P P P	/					
	OMS-840	3/2R	P P P	/					
	OMS-841	3/2R	P P P	/					
	OMS-842	3/2R	P P P	/					
	OMS-843	3/2R	P P P	/					
	OMS-844	3/2R	P P P	/					
	OMS-845	3/2R	P P P	/					
03-3-7002-1	OMS-894	3/2R	P P P	/					
	OMS-896	3/2R	P P P	/					
	OMS-898	3/2R	P P P	/					
	OMS-900	3/2R	P P P	/					
	OMS-902	3/2R	P P P	/					
	OMS-904	3/2R	P P P	/					
	OMS-906	3/2R	P P P	/					
	OMS-908	3/2R	P P P	/					
	OMS-910	3/2R	P P P	/					
	OMS-912	3/2R	P P P	/					
	OMS-914	3/2R	P P P	/					
	OMS-916	3/2R	P P P	/					
	OMS-918	3/2R	P P P	/					
	OMS-920	3/2R	P P P	/					
	OMS-922	3/2R	P P P	/					
	OMS-924	3/2R	P P P	/					
	OMS-1003	3/2R	P P P	/					
	OMS-1005	3/2R	P P P	/					
	OMS-1007	3/2R	P P P	/					
	OMS-1009	3/2R	P P P	/					
	OMS-1011	3/2R	P P P	/					
	OMS-1013	3/2R	P P P	/					
	OMS-1015	3/2R	P P P	/					
	OMS-1017	3/2R	P P P	/					
	OMS-1019	3/2R	P P P	/					
	OMS-1021	3/2R	P P P	/					
	OMS-1023	3/2R	P P P	/					
	OMS-1025	3/2R	P P P	/					
	OMS-1027	3/2R	P P P	/					
	OMS-1029	3/2R	P P P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
03-3-7002-1	OMS-1031	3/2R	P	P	P	/					
	OMS-1033	3/2R	P	P	P	/					
	OMS-1035	3/2R	P	P	P	/					
	OMS-1037	3/2R	P	P	P	/					
	OMS-1039	3/2R	P	P	P	/					
	OMS-1041	3/2R	P	P	P	/					
	OMS-1043	3/2R	P	P	P	/					
	OMS-1045	3/2R	P	P	P	/					
03-3-7002-2	OMS-895	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-897	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-899	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-901	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-903	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-905	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-907	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-909	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-911	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-913	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-915	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-917	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-919	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-921	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-923	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-925	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-1004	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1006	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1008	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1010	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1012	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1014	3/2R	P	P	P	/					
	OMS-1016	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1018	3/2R	P	P	P	/					
	OMS-1020	3/2R	P	P	P	/					
	OMS-1022	3/2R	P	P	P	/					
	OMS-1024	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1026	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1028	3/2R	P	P	P	/					
	OMS-1030	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1032	3/2R	P	P	P	/					
	OMS-1034	3/2R	P	P	P	/					
	OMS-1036	3/2R	P	P	P	/					
	OMS-1038	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1040	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1042	3/2R	P	P	P	/					



## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
03-3-7002-2	OMS-1044	3/2R	P	P	P	3/2R	F	F	P	EPD&C 1	X
	OMS-1046	3/2R	P	P	P	/					
03-3-7011-1	OMS-952	3/2R	P	P	P	/					
	OMS-953	3/2R	P	P	P	/				EPD&C 7	X
	OMS-954	3/2R	P	P	P	/					
	OMS-955	3/2R	P	P	P	/				EPD&C 7	X
	OMS-956	3/2R	P	P	P	/					
	OMS-957	3/2R	P	P	P	/				EPD&C 7	X
	OMS-958	3/2R	P	P	P	/					
	OMS-959	3/2R	P	P	P	/				EPD&C 7	X
	OMS-960	3/2R	P	P	P	/					
	OMS-961	3/2R	P	P	P	/				EPD&C 7	X
	OMS-962	3/2R	P	P	P	/					
	OMS-963	3/2R	P	P	P	/				EPD&C 7	X
	OMS-964	3/2R	P	P	P	/					
	OMS-965	3/2R	P	P	P	/				EPD&C 7	X
	OMS-966	3/2R	P	P	P	/					
	OMS-967	3/2R	P	P	P	/				EPD&C 7	X
	OMS-968	3/2R	P	P	P	/					
	OMS-969	3/2R	P	P	P	/				EPD&C 7	X
	OMS-970	3/2R	P	P	P	/					
	OMS-971	3/2R	P	P	P	/				EPD&C 7	X
	OMS-972	3/2R	P	P	P	/					
	OMS-973	3/2R	P	P	P	/				EPD&C 7	X
03-3-7801-1	OMS-990	3/3				/					
	OMS-991	3/3				/					
	OMS-992	3/3				/					
	OMS-993	3/3				/					
	OMS-994	3/3				2/2				EPD&C 1	X
	OMS-995	3/3				/					
	OMS-996	3/3				/					
	OMS-997	3/3				2/2				EPD&C 1	X
	OMS-998	3/3				2/2				EPD&C 1	X
	OMS-999	3/3				/					
	OMS-1000	3/3				/					
	OMS-1001	3/3				2/2				EPD&C 1	X
	OMS-1002	3/3				2/2				EPD&C 1	X
03-3-8001-1	OMS-21001X	3/2R	P	P	P	2/2				EPD&C 1	X
05-6L-2001-1	OMS-424	3/1R	P	P	P	/					
	OMS-425	3/1R	P	P	P	/					
05-6L-2002-1	OMS-478	3/1R	P	NA	P	/					
	OMS-479	3/1R	P	NA	P	/					
	OMS-480	3/1R	P	NA	P	/					
	OMS-481	3/1R	P	NA	P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C		CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE	
05-6L-2004-1	OMS-474	3/1R	P F P		3/2R	P F P	EPD&C 3		X
	OMS-475	3/1R	P F P		3/2R	P F P	EPD&C 3		X
	OMS-476	3/1R	P F P		3/2R	P F P	EPD&C 3		X
	OMS-477	3/1R	P F P		3/2R	P F P	EPD&C 3		X
05-6L-2006-1	OMS-645	3/1R	P P P		/				
	OMS-647	3/1R	P P P		/				
05-6L-2007-1	OMS-644	3/1R	P F P		/				
	OMS-646	3/1R	P F P		/				
05-6L-2008-1	OMS-685	3/1R	P P P		3/1R	P NA P	EPD&C 3		X
	OMS-686	3/1R	P P P		3/1R	P NA P	EPD&C 3		X
05-6L-2009-1	OMS-778	3/2R	P P P		/				
	OMS-779	3/2R	P P P		/				
	OMS-780	3/2R	P P P		/				
	OMS-781	3/2R	P P P		/				
05-6L-2011-1	OMS-598	3/3			/				
	OMS-599	3/3			/				
05-6L-2012-1	OMS-762	3/2R	P F P		/				
	OMS-763	3/2R	P F P		/				
	OMS-764	3/2R	P F P		/				
	OMS-765	3/2R	P F P		/				
	OMS-766	3/2R	P F P		/				
	OMS-767	3/2R	P F P		/				
	OMS-768	3/2R	P F P		/				
	OMS-769	3/2R	P F P		/				
	OMS-770	3/2R	P F P		/				
	OMS-771	3/2R	P F P		/				
	OMS-772	3/2R	P F P		/				
	OMS-773	3/2R	P F P		/				
	OMS-774	3/2R	P F P		/				
	OMS-775	3/2R	P F P		/				
	OMS-776	3/2R	P F P		/				
	OMS-777	3/2R	P F P		/				
05-6L-2014-1	OMS-690	3/3			/				
	OMS-691	3/3			/				
05-6L-2015-1	OMS-648	3/1R	P F P		/				
	OMS-649	3/1R	P F P		/				
	OMS-650	3/1R	P F P		/				
	OMS-651	3/1R	P F P		/				
05-6L-2016-1	OMS-750	3/2R	P F P		/				
	OMS-751	3/2R	P F P		/				
	OMS-752	3/2R	P F P		/				
	OMS-753	3/2R	P F P		/				
	OMS-754	3/2R	P F P		/				
	OMS-755	3/2R	P F P		/				

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
05-6L-2016-1	OMS-756	3/2R	P	F	P	/					
	OMS-757	3/2R	P	F	P	/					
	OMS-758	3/2R	P	F	P	/					
	OMS-759	3/2R	P	F	P	/					
	OMS-760	3/2R	P	F	P	/					
	OMS-761	3/2R	P	F	P	/					
05-6L-2018-1	OMS-948	3/2R	P	P	P	/					
	OMS-949	3/2R	P	P	P	/					
05-6L-2019-1	OMS-942	3/2R	P	P	P	/					
	OMS-943	3/2R	P	P	P	/					
	OMS-944	3/2R	P	P	P	/					
	OMS-945	3/2R	P	P	P	/					
	OMS-946	3/2R	P	P	P	/					
	OMS-947	3/2R	P	P	P	/					
05-6L-2020-1	OMS-950	3/2R	P	P	P	/					
	OMS-951	3/2R	P	P	P	/					
05-6L-2026-1	OMS-440	3/1R	P	P	P	/					
	OMS-443	3/1R	P	P	P	/					
05-6L-2026-2	OMS-439	2/1R	P	P	P	/					
	OMS-441	2/1R	P	P	P	/					
05-6L-2027-1	OMS-592	3/1R	P	NA	P	/					
	OMS-595	3/1R	P	NA	P	/					
05-6L-2027-2	OMS-594	3/1R	P	NA	P	2/1R	P	P	P	EPD&C 1	X
	OMS-597	3/1R	P	NA	P	2/1R	P	P	P	EPD&C 1	X
05-6L-2028-1	OMS-586	3/1R	P	F	P	3/1R	P	F	P	EPD&C 8	X
	OMS-589	3/1R	P	F	P	3/1R	P	F	P	EPD&C 8	X
05-6L-2028-2	OMS-588	3/1R	P	F	P	3/1R	P	P	P	EPD&C 3	X
	OMS-591	3/1R	P	F	P	3/1R	P	P	P	EPD&C 3	X
05-6L-2028-3	OMS-587	3/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
	OMS-590	3/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
05-6L-2029-1	OMS-674	2/1R	P	P	P	/					
05-6L-2029-2	OMS-672	3/1R	?	?	?	3/1R	P	F	P	EPD&C 1	X
	OMS-673	3/1R	?	?	?	3/1R	P	F	P	EPD&C 1	X
05-6L-2030-1	OMS-675	2/1R	P	P	P	/					
05-6L-2030-2	OMS-676	3/1R	P	NA	P	3/1R	P	F	P	EPD&C 1	X
05-6L-2031-1	OMS-928	3/2R	P	P	P	/					
	OMS-929	3/2R	P	P	P	/					
05-6L-2031-2	OMS-926	3/2R	P	F	P	2/1R	P	P	P	EPD&C 2	X
	OMS-927	3/2R	P	F	P	2/1R	P	P	P	EPD&C 2	X
05-6L-2033-1	OMS-449	3/3				3/2R	P	P	P	EPD&C 2	X
05-6L-2034-1	OMS-612	3/3				3/2R	P	P	P	EPD&C 2	X
05-6L-2035-1	OMS-613	3/3				/					
05-6L-2036-1	OMS-1047	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-1049	3/3				3/2R	P	P	P	EPD&C 2	X

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA				IOA RECOMMENDATIONS *					
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
05-6L-2036-2	OMS-1048	3/2R	P	P	P	/					
	OMS-1050	3/2R	P	P	P	/					
05-6L-2076-1	OMS-428	3/3				/					
	OMS-429	3/3				/					
	OMS-430	3/3				/					
	OMS-431	3/3				/					
	OMS-434	3/3				/					
	OMS-435	3/3				/					
	OMS-436	3/3				/					
	OMS-437	3/3				/					
05-6L-2077-1	OMS-426	3/3				/					
	OMS-427	3/3				/					
	OMS-432	3/3				/					
	OMS-433	3/3				/					
05-6L-2078-1	OMS-530	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-537	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-550	3/3				/					
	OMS-552	3/3				/					
	OMS-554	3/3				/					
	OMS-556	3/3				/					
	OMS-576	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-584	3/3				3/2R	P	P	P	EPD&C 2	X
05-6L-2079-1	OMS-527	3/3				/					
	OMS-533	3/3				/					
	OMS-571	3/3				/					
	OMS-573	3/3				/					
	OMS-579	3/3				/					
	OMS-581	3/3				/					
05-6L-2079-2	OMS-572	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
	OMS-578	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
05-6L-2079A-2	OMS-526	2/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
	OMS-532	2/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
	OMS-570	2/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
	OMS-580	2/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
05-6L-2082-1	OMS-518	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-524	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-540	3/3				/					
	OMS-542	3/3				/					
	OMS-546	3/3				/					
	OMS-548	3/3				/					
	OMS-562	3/3				3/2R	P	P	P	EPD&C 2	X
	OMS-568	3/3				3/2R	P	P	P	EPD&C 2	X
05-6L-2083-1	OMS-514	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
	OMS-520	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
05-6L-2083A-1	OMS-558	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
	OMS-564	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
	OMS-538	2/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
	OMS-544	2/1R	P	F	P	3/2R	P	P	P	EPD&C 3	X
05-6L-2086-1	OMS-658	3/3				/					
	OMS-659	3/3				/					
	OMS-662	3/3				/					
	OMS-633	3/3				/					
	OMS-664	3/3				/					
	OMS-665	3/3				/					
	OMS-667	3/3				/					
	OMS-668	3/3				/					
05-6L-2087-1	OMS-670	3/3				/					
	OMS-671	3/3				/					
	OMS-652	3/3				/					
	OMS-653	3/3				/					
05-6L-2088-1	OMS-654	3/3				/					
	OMS-655	3/3				/					
	OMS-656	3/3				/					
	OMS-657	3/3				/					
	OMS-878	3/3				/					
	OMS-879	3/3				/					
	OMS-880	3/3				/					
	OMS-881	3/3				/					
05-6L-2089-1	OMS-854	3/2R	P	F	P	/					
	OMS-855	3/2R	P	F	P	/					
	OMS-858	3/2R	P	F	P	/					
	OMS-859	3/2R	P	F	P	/					
	OMS-862	3/2R	P	F	P	/					
	OMS-863	3/2R	P	F	P	/					
	OMS-866	3/2R	P	F	P	/					
	OMS-867	3/2R	P	F	P	/					
	OMS-870	3/2R	P	F	P	/					
	OMS-872	3/2R	P	F	P	/					
	OMS-874	3/2R	P	F	P	/					
	OMS-875	3/2R	P	F	P	/					
05-6L-2089-2	OMS-856	3/2R	P	F	P	/					
	OMS-857	3/2R	P	F	P	/					
	OMS-860	3/2R	P	F	P	/					
	OMS-861	3/2R	P	F	P	/					
	OMS-864	3/2R	P	F	P	/					
	OMS-865	3/2R	P	F	P	/					
	OMS-868	3/2R	P	F	P	/					
	OMS-869	3/2R	P	F	P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
05-6L-2089-2	OMS-871	3/2R	P	F	P	/					
	OMS-873	3/2R	P	F	P	/					
	OMS-876	3/2R	P	F	P	/					
	OMS-877	3/2R	P	F	P	/					
05-6L-2090-1	OMS-529	3/3				/					
	OMS-534	3/3				/					
	OMS-574	3/3				/					
	OMS-582	3/3				/					
05-6L-2091-1	OMS-516	3/3				/					
	OMS-522	3/3				/					
	OMS-560	3/3				/					
	OMS-556	3/3				/					
05-6L-2093-1	OMS-986	3/3				/					
	OMS-988	3/3				/					
05-6L-2094-1	OMS-979	3/2R	P	P	P	/					
	OMS-980	3/2R	P	P	P	/					
	OMS-983	3/2R	P	P	P	/					
	OMS-984	3/2R	P	P	P	/					
05-6L-2109-1	OMS-660	3/3				/					
	OMS-669	3/3				/					
05-6L-2126-1	OMS-492	3/1R	P	NA	P	3/1R	P	F	P	EPD&C 1	X
	OMS-496	3/1R	P	NA	P	3/1R	P	F	P	EPD&C 1	X
	OMS-508	3/1R	P	NA	P	3/1R	P	F	P	EPD&C 1	X
	OMS-513	3/1R	P	NA	P	3/1R	P	F	P	EPD&C 1	X
05-6L-2126-2	OMS-493	2/1R	P	F	P	/				EPD&C 6	X
	OMS-497	2/1R	P	F	P	/				EPD&C 6	X
	OMS-509	2/1R	P	F	P	/				EPD&C 6	X
	OMS-510	2/1R	P	F	P	/				EPD&C 6	X
05-6L-2127-1	OMS-490	2/1R	P	P	P	/					
	OMS-494	2/1R	P	P	P	/					
	OMS-506	2/1R	P	P	P	/					
	OMS-511	2/1R	P	P	P	/					
05-6L-2127-2	OMS-491	3/1R	P	F	P	/				EPD&C 6	X
	OMS-495	3/1R	P	F	P	/				EPD&C 6	X
	OMS-507	3/1R	P	F	P	/				EPD&C 6	X
	OMS-512	3/1R	P	F	P	/				EPD&C 6	X
05-6L-2130-1	OMS-482	3/1R	P	P	P	/					
	OMS-484	3/1R	P	F	P	/					
	OMS-486	3/1R	P	P	P	/					
	OMS-488	3/1R	P	F	P	/					
	OMS-498	3/1R	P	P	P	/					
	OMS-500	3/1R	P	F	P	/					
	OMS-502	3/1R	P	P	P	/					
	OMS-504	3/1R	P	F	P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)		ISSUE	
05-6L-2130-2	OMS-485	2/1R	P F P	3/2R	P F P	EPD&C 3		X	
	OMS-489	2/1R	P F P	3/2R	P F P	EPD&C 3		X	
	OMS-501	2/1R	P F P	3/2R	P F P	EPD&C 3		X	
	OMS-505	2/1R	P F P	3/2R	P F P	EPD&C 3		X	
05-6L-2131-2	OMS-483	3/1R	P F P	3/3		EPD&C 3		X	
	OMS-487	3/1R	P F P	3/3		EPD&C 3		X	
	OMS-499	3/1R	P F P	3/3		EPD&C 3		X	
	OMS-503	3/1R	P F P	3/3		EPD&C 3		X	
05-6L-2134-1	OMS-847	3/2R	P P P	/					
	OMS-849	3/2R	P P P	/					
	OMS-851	3/2R	P P P	/					
	OMS-853	3/2R	P P P	/					
05-6L-2134-2	OMS-846	3/2R	P F P	2/1R	P F P	EPD&C 2		X	
	OMS-848	3/2R	P F P	2/1R	P F P	EPD&C 2		X	
	OMS-850	3/2R	P F P	2/1R	P F P	EPD&C 2		X	
	OMS-852	3/2R	P F P	2/1R	P F P	EPD&C 2		X	
05-6L-2136-1	OMS-975	3/2R	P P P	/					
	OMS-977	3/2R	P P P	/					
05-6L-2136-2	OMS-974	3/2R	P F P	/					
	OMS-976	3/2R	P F P	/					
05-6L-2137-1	OMS-930	3/2R	P P P	/					
	OMS-932	3/2R	P P P	/					
	OMS-934	3/2R	P P P	/					
	OMS-936	3/2R	P P P	/					
	OMS-938	3/2R	P P P	/					
	OMS-940	3/2R	P P P	/					
	OMS-931	3/2R	P NA P	3/2R	P P P	EPD&C 3		X	
05-6L-2137-2	OMS-933	3/2R	P NA P	3/2R	P P P	EPD&C 3		X	
	OMS-935	3/2R	P NA P	3/2R	P P P	EPD&C 3		X	
	OMS-937	3/2R	P NA P	3/2R	P P P	EPD&C 3		X	
	OMS-939	3/2R	P NA P	3/2R	P P P	EPD&C 3		X	
	OMS-941	3/2R	P NA P	3/2R	P P P	EPD&C 3		X	
05-6L-2151-1	OMS-602	3/3		3/2R	P P P	EPD&C 2		X	
	OMS-603	3/3		3/2R	P P P	EPD&C 2		X	
05-6L-2152-1	OMS-600	3/3		3/2R	P P P	EPD&C 2		X	
	OMS-601	3/3		3/2R	P P P	EPD&C 2		X	
05-6L-2153-1	OMS-444	3/3		3/2R	P P P	EPD&C 2		X	
05-6L-2154-1	OMS-692	3/3		/					
05-6L-2155-1	OMS-605	3/3		3/2R	P P P	EPD&C 2		X	
	OMS-607	3/3		3/2R	P P P	EPD&C 2		X	
05-6L-2158-1	OMS-606	3/3		/					
05-6L-2176-1	OMS-384	3/1R	P P P	/					
	OMS-386	3/1R	P P P	/					
	OMS-388	3/1R	P P P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C		
								OTHER (SEE LEGEND CODE)	ISSUE
05-6L-2176-2	OMS-390	3/1R	P	P	P	/			
	OMS-392	3/1R	P	P	P	/			
	OMS-394	3/1R	P	P	P	/			
	OMS-396	3/1R	P	P	P	/			
	OMS-398	3/1R	P	P	P	/			
	OMS-385	3/1R	P	P	P	/			
	OMS-387	3/1R	P	P	P	/			
	OMS-389	3/1R	P	P	P	/			
	OMS-391	3/1R	P	P	P	/			
	OMS-393	3/1R	P	P	P	/			
05-6L-2177-1	OMS-395	3/1R	P	P	P	/			
	OMS-397	3/1R	P	P	P	/			
	OMS-399	3/1R	P	P	P	3/1R	P F P	EPD&C 1	X
	OMS-677	3/1R	P	NA	P	/			
05-6L-2177-2	OMS-679	3/1R	P	NA	P	/			
	OMS-681	3/1R	P	NA	P	/			
	OMS-683	3/1R	P	NA	P	/			
	OMS-678	3/3				/			
05-6L-2201-1	OMS-680	3/3				/			
	OMS-682	3/3				/			
	OMS-684	3/3				/			
	OMS-420	3/1R	P	P	P	/			
05-6L-2201-2	OMS-422	3/1R	P	P	P	/			
	OMS-421	3/1R	P	P	P	/			
05-6L-2202-1	OMS-423	3/1R	P	P	P	/			
	OMS-466	3/3				3/2R	P P P	EPD&C 2	X
	OMS-468	3/3				/			
	OMS-470	3/3				3/2R	P P P	EPD&C 2	X
05-6L-2202-2	OMS-472	3/3				/			
	OMS-467	3/3				/			
	OMS-469	3/3				3/2R	P P P	EPD&C 2	X
	OMS-471	3/3				/			
05-6L-2204-1	OMS-473	3/3				3/2R	P P P	EPD&C 2	X
	OMS-458	3/3				3/2R	P P P	EPD&C 2	X
	OMS-459	3/3				3/2R	P P P	EPD&C 2	X
	OMS-460	3/3				3/2R	P P P	EPD&C 2	X
05-6L-2206-1	OMS-461	3/3				3/2R	P P P	EPD&C 2	X
	OMS-462	3/3				3/2R	P P P	EPD&C 2	X
	OMS-463	3/3				3/2R	P P P	EPD&C 2	X
	OMS-464	3/3				3/2R	P P P	EPD&C 2	X
	OMS-465	3/3				3/2R	P P P	EPD&C 2	X
	OMS-632	3/1R	P	F	P	/			
	OMS-640	3/1R	P	F	P	/			



## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)		ISSUE	
05-6L-2206-2	OMS-633	3/1R	P P P	3/1R	P F P	EPD&C 1		X	
	OMS-641	3/1R	P P P	3/1R	P F P	EPD&C 1		X	
05-6L-2207-1	OMS-626	3/1R	P F P	/					
	OMS-628	3/1R	P F P	/					
	OMS-630	3/1R	P F P	/					
	OMS-634	3/1R	P F P	/					
	OMS-636	3/1R	P F P	/					
	OMS-638	3/1R	P F P	/					
05-6L-2207-2	OMS-627	3/1R	P F P	/					
	OMS-629	3/1R	P F P	/					
	OMS-631	3/1R	P F P	/					
	OMS-635	3/1R	P F P	/					
	OMS-637	3/1R	P F P	/					
	OMS-639	3/1R	P F P	/					
05-6L-2208-1	OMS-642	3/3		/					
05-6L-2208-2	OMS-643	3/1R	P F P	/					
05-6L-2209-1	OMS-622	3/3		/					
	OMS-624	3/3		/					
05-6L-2209-2	OMS-623	3/1R	P P P	/					
	OMS-625	3/1R	P P P	/					
05-6L-2210-1	OMS-707	3/2R	P P P	/					
	OMS-709	3/2R	P P P	/					
	OMS-711	3/2R	P P P	/					
	OMS-713	3/2R	P P P	/					
	OMS-716	3/2R	P P P	/					
	OMS-717	3/2R	P P P	/					
	OMS-719	3/2R	P P P	/					
	OMS-721	3/2R	P P P	/					
	OMS-723	3/2R	P P P	/					
	OMS-725	3/2R	P P P	/					
	OMS-727	3/2R	P P P	/					
	OMS-729	3/2R	P P P	/					
	OMS-731	3/2R	P P P	/					
	OMS-733	3/2R	P P P	/					
	OMS-735	3/2R	P P P	/					
	OMS-737	3/2R	P P P	/					
	OMS-739	3/2R	P P P	/					
	OMS-741	3/2R	P P P	/					
	OMS-743	3/2R	P P P	/					
	OMS-745	3/2R	P P P	/					
	OMS-747	3/2R	P P P	/					
	OMS-749	3/2R	P P P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
05-6L-2210-2	OMS-706	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-708	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-710	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-712	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-714	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-715	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-718	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-720	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-722	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-724	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-726	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-728	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-730	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-732	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-734	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-736	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-738	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-740	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-742	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-744	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-746	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
	OMS-748	3/2R	P	P	P	2/1R	P	P	P	EPD&C 1	X
05-6L-2251-1	OMS-400	3/1R	P	P	P	/					
	OMS-402	3/1R	P	P	P	/					
	OMS-404	3/1R	P	P	P	/					
	OMS-406	3/1R	P	P	P	/					
	OMS-408	3/1R	P	P	P	/					
	OMS-412	3/1R	P	P	P	/					
	OMS-416	3/1R	P	P	P	/					
	OMS-418	3/1R	P	P	P	/					
05-6L-2251-2	OMS-401	3/1R	F	F	P	/					
	OMS-403	3/1R	F	F	P	/					
	OMS-405	3/1R	F	F	P	/					
	OMS-407	3/1R	F	F	P	/					
	OMS-409	3/1R	F	F	P	/					
	OMS-413	3/1R	F	F	P	/					
	OMS-417	3/1R	F	F	P	/					
	OMS-419	3/1R	F	F	P	/					
05-6L-2252-1	OMS-410	3/1R	P	NA	P	/					
	OMS-414	3/1R	P	NA	P	/					
05-6L-2252-2	OMS-411	3/3				/					
	OMS-415	3/3				/					
05-6L-2253-1	OMS-450	2/1R	P	P	P	/					
	OMS-452	2/1R	P	P	P	/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
05-6L-2253-2	OMS-451	3/1R	P	P	P	/					
	OMS-453	3/1R	P	P	P	/					
05-6L-2253A-1	OMS-450A	2/1R	P	P	P	3/1R	P	P	P	EPD&C 3	X
	OMS-452A	2/1R	P	P	P	3/1R	P	P	P	EPD&C 3	X
05-6L-2253A-2	OMS-451A	2/1R	P	P	P	3/3				EPD&C 3	X
	OMS-453A	2/1R	P	P	P	3/3				EPD&C 3	X
05-6L-2253B-1	OMS-450B	3/1R	P	P	P	/					
	OMS-452B	3/1R	P	P	P	/					
05-6L-2253B-2	OMS-451B	3/3				/					
	OMS-453B	3/3				/					
05-6L-2253C-1	OMS-450C	3/1R	P	P	P	3/1R	P	F	P	EPD&C 1	X
	OMS-452C	3/1R	P	P	P	3/1R	P	F	P	EPD&C 1	X
05-6L-2253D-1	OMS-450D	3/2R	P	P	P	3/1R	P	P	P	EPD&C 2	X
	OMS-452D	3/2R	P	P	P	3/1R	P	P	P	EPD&C 2	X
05-6L-2255-1	OMS-450E	3/1R	P	F	P	3/3				EPD&C 3	X
	OMS-452E	3/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2256-1	OMS-450F	2/1R	P	F	P	3/3				EPD&C 3	X
	OMS-452F	2/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2256A-1	OMS-450G	3/1R	P	F	P	3/3				EPD&C 3	X
	OMS-452G	3/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2256B-2	OMS-451C	3/1R	P	F	P	3/3				EPD&C 3	X
	OMS-453C	3/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2257-1	OMS-454	3/1R	P	P	P	3/2R	P	F	P	EPD&C 1	X
	OMS-456	3/1R	P	P	P	3/2R	P	F	P	EPD&C 1	X
05-6L-2257-2	OMS-455	3/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
	OMS-457	3/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
05-6L-2257A-1	OMS-454A	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
	OMS-456A	2/1R	P	P	P	3/2R	P	P	P	EPD&C 3	X
05-6L-2257A-2	OMS-455A	2/1R	P	P	P	3/3				EPD&C 3	X
	OMS-457A	2/1R	P	P	P	3/3				EPD&C 3	X
05-6L-2257B-1	OMS-454B	3/1R	P	P	P	/					
	OMS-456B	3/1R	P	P	P	/					
05-6L-2257B-2	OMS-455B	3/3				/					
	OMS-457B	3/3				/					
05-6L-2257C-1	OMS-454C	3/1R	P	P	P	3/1R	P	F	P	EPD&C 1	X
	OMS-456C	3/1R	P	P	P	3/1R	P	F	P	EPD&C 1	X
05-6L-2257D-1	OMS-454D	3/2R	P	P	P	/					
	OMS-456D	3/2R	P	P	P	/					
05-6L-2258-1	OMS-454E	3/1R	P	F	P	/					
	OMS-456E	3/1R	P	F	P	/					
05-6L-2259-1	OMS-454F	3/1R	P	F	P	3/3				EPD&C 3	X
	OMS-456F	3/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2260-1	OMS-454G	2/1R	P	F	P	3/3				EPD&C 3	X
	OMS-456G	2/1R	P	F	P	3/3				EPD&C 3	X

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
05-6L-2260A-1	OMS-454H	3/1R	P	F	P	3/3				EPD&C 3	X
	OMS-456H	3/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2260B-2	OMS-454I	3/1R	P	F	P	3/3				EPD&C 3	X
	OMS-456I	3/1R	P	F	P	3/3				EPD&C 3	X
05-6L-2261-1	OMS-614	3/1R	P	F	P	/					
	OMS-616	3/1R	P	F	P	/					
	OMS-618	3/1R	P	F	P	/					
	OMS-621	3/1R	P	F	P	/					
05-6L-2261-2	OMS-615	3/1R	P	F	P	/					
	OMS-617	3/1R	P	F	P	/					
	OMS-619	3/1R	P	F	P	/					
	OMS-620	3/1R	P	F	P	/					
NONE	OMS-438	/				3/1R	P	P	P	EPD&C 4	X
	OMS-442	/				3/1R	P	P	P	EPD&C 4	X
	OMS-515	/				/					
	OMS-517	/				/					
	OMS-519	/				/					
	OMS-521	/				/					
	OMS-523	/				/					
	OMS-525	/				/					
	OMS-528	/				/					
	OMS-531	/				/					
	OMS-535	/				/					
	OMS-536	/				/					
	OMS-539	/				/					
	OMS-541	/				/					
	OMS-543	/				/					
	OMS-545	/				/					
	OMS-547	/				/					
	OMS-549	/				/					
	OMS-551	/				/					
	OMS-553	/				/					
	OMS-555	/				/					
	OMS-557	/				/					
	OMS-559	/				/					
	OMS-561	/				/					
	OMS-563	/				/					
	OMS-565	/				/					
	OMS-567	/				/					
	OMS-569	/				/					
	OMS-575	/				/					
	OMS-577	/				/					
	OMS-583	/				/					
	OMS-585	/				/					

## APPENDIX F

## NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA		IOA RECOMMENDATIONS *			
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE
NONE	OMS-593	/		3/3		EPD&C 4	X
	OMS-596	/		3/3		EPD&C 4	X
	OMS-604	/		3/2R	P P P	EPD&C 5	X
	OMS-661	/		/			
	OMS-666	/		/			
	OMS-689	/		2/2		EPD&C 5	X
	OMS-882	/		3/3		EPD&C 5	X
	OMS-883	/		3/3		EPD&C 5	X
	OMS-884	/		3/3		EPD&C 5	X
	OMS-885	/		3/3		EPD&C 5	X
	OMS-886	/		3/3		EPD&C 5	X
	OMS-887	/		3/3		EPD&C 5	X
	OMS-888	/		3/3		EPD&C 5	X
	OMS-889	/		3/3		EPD&C 5	X
	OMS-890	/		3/3		EPD&C 5	X
	OMS-891	/		3/3		EPD&C 5	X
	OMS-892	/		3/3		EPD&C 5	X
	OMS-893	/		3/3		EPD&C 5	X
	OMS-978	/		/			
	OMS-981	/		/			
	OMS-982	/		/			
	OMS-985	/		/			
	OMS-987	/		/			
	OMS-989	/		/			

